JUL 24 1922

MSS. and other Communications for the Editor should be addressed to G. E. MOORE, Litt.D., 17 Magdalene Street, Cambridge

No contribution reaching the Editor later than 11th September next can appear in the October Number of MIND.

In consequence of the continued increase in the cost of production it has been necessary to raise the subscription price of MIND from 12/- to 16/- a year, and of single numbers from 4/- to 4/6. The price to members of the Association remains however the same.

VOL. XXXI. No. 123. JULY, 1922.

GENERAL LIBRARY JUL 24 1922 UNIV. OF MICH.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

EDITED BY

G. E. MOORE,

WITH THE CO-OPERATION OF PROFESSOR PRINGLE-PATTISON, PROFESSOR C. D. BROAD, AND F. C. BARTLETT, M.A.

CONTENTS.

	PAGE
I.—The Philosophy of Chance: F. Y. EDGEWORTH . .	257
II.—Sense-data and Sensible Appearances in Size-Distance Perception: H. N. RANDLE	284
III.—Mr. Russell's Theory of the External World: C. A. STRONG	307
IV.—Visual Images, Words and Dreams: JOSHUA C. GREGORY	321
V.—Discussions:	
A Word about "Coherence": B. BOSANQUET . .	335
Relativity, Scientific and Philosophical: J. E. TURNER	337
VI.—Critical Notice:	
Sir Henry Jones: A Faith that Enquires: J. S. MACKENZIE	343
VII.—New Books	350
VIII.—Philosophical Periodicals	378
IX.—Notes	380

PUBLISHED FOR THE MIND ASSOCIATION BY

MACMILLAN & CO., LIMITED,

ST. MARTIN'S STREET, LONDON, W.C. 2.

NEW YORK: THE MACMILLAN COMPANY.

Price Four Shillings and Sixpence. ——— *All Rights Reserved.*

Entered at the New York Post Office as second class matter.

NEW WORK BY DR. JAMES LINDSAY.

GREAT PHILOSOPHICAL PROBLEMS.

10s. 6d. net.

CONTENTS.—The Greatest Problem in Value—The Ethical Value of Individuality—The Character of Cognitive Acts—Rationalism and Voluntarism—The Ontological Consciousness—Philosophy and Faith—The Unity of God and Man—The Ethics of Some Modern World Theories—The Phenomenology of Pain.

WM. BLACKWOOD & SONS, EDINBURGH and LONDON.

MACMILLAN'S

NEW AND RECENT WORKS ON PHILOSOPHY.

A THEORY OF MONADS: Outlines of the Philosophy of the Principle of Relativity. By H. WILDON CARR, D.Litt., Professor of Philosophy in the University of London. 8vo, **15s.** net.

THE NEW IDEALISM. By MAY SINCLAIR, Author of "A Defence of Idealism. Some Questions and Conclusions." 8vo, **14s.** net.

A FAITH THAT ENQUIRES. The Gifford Lectures delivered in the University of Glasgow in the years 1920 and 1921. By Sir HENRY JONES, M.A., LL.D., D.Litt. 8vo, **18s.** net.

THE THEORY OF MIND AS PURE ACT. By GIOVANNI GENTILE, Professor in the University of Rome. Translated from the 3rd Edition, with an Introduction, by H. WILDON CARR, D.Litt. 8vo, **15s.** net.

THE MEETING OF EXTREMES IN CONTEMPORARY PHILOSOPHY. By BERNARD BOSANQUET, M.A., LL.D., D.C.L. Crown 8vo, **8s. 6d.** net.

THE TRAGIC SENSE OF LIFE IN MEN AND IN PEOPLES. By MIGUEL DE UNAMUNO. Translated by J. E. C. FLITCH, M.A. With an Introductory Essay by SALVADOR DE MADARIAGA. 8vo, **17s.** net.

SECOND EDITION REVISED.

ÆSTHETIC AS SCIENCE OF EXPRESSION AND GENERAL LINGUISTIC. Translated from the Italian of BENEDETTO CROCE by DOUGLAS AINSLIE, B.A. (Oxon.). Second Edition Revised. 8vo, **21s.** net.

THE FOUNDATIONS OF CHARACTER: Being a Study of the Tendencies of the Emotions and Sentiments. By ALEXANDER F. SHAND, M.A. Second and Revised Edition. 8vo, **20s.** net.

MACMILLAN & CO., LTD., LONDON, W.C. 2.

SAY.

EMS.

Value of
ntarism—
God and
y of Pain.

ONDON.

PHY.

of the
losophy

ence of

in the
JONES,

NTILE,
, with

ILO-
8vo,

LES.
ith an

RAL
CE by
.

f the
M.A.

2.

XUM

VOL. XXXI. No. 123.] [JULY, 1922.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—THE PHILOSOPHY OF CHANCE.

BY F. Y. EDGEWORTH.

NEARLY forty years have elapsed since I contributed to MIND, under the title now again employed, some reflections suggested by Dr. Venn's *Logic of Chance*. The appearance of another original work, inquiring into first principles and challenging received opinions, Mr. Maynard Keynes' treatise on *Probability*, now renders opportune a reconsideration of views expressed in 1884.

The questions to be rehandled may be arranged under the following heads:—

I. What is the definition of Probability; what does Reflection (in Locke's sense) reveal respecting that sort of partial belief to which the term Probability relates?

II. Should that kind of belief be attached to propositions other than those based on statistical experience; on the observation that in the long run the frequency of a species (*e.g.*, male births) presents approximately a certain ratio to the frequency of its genus (*e.g.*, births in general)?

III. With respect to probabilities which are thus based on statistical uniformities, "series" in Dr. Venn's phrase, what canons are available for proving that the series will hold good beyond the limits within which it has been observed?

IV. What is the bearing of the Probability-Calculus on conduct; what guidance is afforded by that compound of prospective advantage and the probability of its attainment which is technically termed Expectation?

I. Characteristics of Probability.

Probability seems not to admit of definition. "We cannot analyse the probability-relation in terms of simpler ideas" (Keynes, p. 8). It is, in Locke's phraseology, a simple idea. Yet it is not so simple and clear but that doubts about its characteristics have arisen.

First, are there gradations of probability; can we measure degrees of belief? I am not concerned to defend the numerical precision of the measurement. We may be content with the conception of measurement which satisfies the physicists. As Prof. Love writes: "The capacity of numbers to answer questions of how many and how much, in other words to express the results of counting and measuring, may be regarded as a secondary property derived from the more fundamental one of expressing order. . . . Natural numbers form a series with a definite order, and the expressions 'greater than' and 'less than' mean more advanced and less advanced in this order" (Article on "Functions of Real Variables," *Encyclopædia Britannica*, edn. x., p. 544, vol. 28. Compare Eddington, *Space, Time and Gravitation*, quoted in part below). In short the issue is narrowed to the question whether it is always possible "to arrange probabilities in an order of magnitude," to say that one is greater or less than another (p. 29). The issue thus defined is not affected by the instances which Mr. Keynes directs against the possibility of "reasoned numerical estimates of probability"; such as the case of the vessel *Waratah* which disappeared in Southern waters and the estimate of the chance that it was still afloat after a considerable lapse of time (p. 23). Even the most discriminating of our senses, eyesight, often affords only blurred and vague perceptions. A common experience was expressed by Euripides' Antigone when, looking from the battlements of Thebes at one of the invading chiefs, she said

ὁρῶ δῆτ' οὐ σαφῶς, ὁρῶ δέ πως. (*Phœnissæ*, 161.)

From a similar standpoint Priam might discern that one hero was taller than another without being able to form a "reasoned numerical estimate" of their heights. But Mr. Keynes objects to even rough comparisons between probabilities unless they are *in eodem genere*. "It is not always possible to say that the degree of our rational belief in one conclusion is either equal to greater or less than the degree of our belief in another" (p. 34). The case is illustrated by the degrees of *similarity* which cannot always be placed in an order of magnitude. "There may be no com-

parison between the degree of similarity which exists between books bound in red morocco and white morocco and books bound in red morocco and red calf" (p. 36). I am disposed to attach importance to the incident that in the scale of probability (whatever the subject) there is at least one fixed point or tract between complete disbelief and perfect certitude; that corresponding to hesitation between two courses of action which offer equal gain there are comparable probabilities of its attainment. But Mr. Keynes would perhaps not admit these objections (p. 30).

Supposing that different amounts of belief can be arranged in a scale, does this presuppose a "series" in Dr. Venn's sense? Must we say with him "the greater part of their meaning and certainly their only justification are to be sought in the series of corresponding events to which they belong" (*Logic of Chance*, edn. 3, p. 150)? Must we say with Ellis: "I have been unable to sever the judgment that one event is more likely than another from the belief that in the long run it will occur more frequently" (quoted by Keynes, p. 93)? Mr. Keynes argues forcibly against this "frequency theory": which even when purified from the assumption of numerical precision and other crudities appears to him untenable. Whereas probability is always relative to definite data, if the datum consists of a "class of reference"—what I have above described as a "genus"—how are we to know what class is appropriate, when a given proposition belongs to innumerable different classes? I understand the difficulty to be of the kind which Dr. Venn has illustrated by the case of the consumptive Englishman in Madeira. Which set of statistics is appropriate—those relating to Englishmen in general, or to consumptive patients without respect to nationality? So it may happen with respect to the measurement of time that one has to depend upon two clocks neither of which keeps good time. Yet common-sense may conjecture which of the two, or what combination of the two, will give the best approximation to the true time. The discrepancy between bad clocks, and that more embarrassing discrepancy between the best clocks moved through space at different rates which the Einstein theory discloses, do not deter the physicist from relying on his chronometer. Thus Prof. Eddington testifies: "I have no notion of time except as the measurement with some kind of clock" (*Space, Time and Gravitation*, p. 13). He is speaking, I think, with reference to the deliberate judgments of science. He would not insist, I suppose, that we always think of a clock in connexion with estimates of

duration, for instance when we hastily judge that there is or is not time to cross a street before a "taxi" will be on us. The Sultan who, as told in the *Spectator* (June 18, 1711), seemed to himself to have lived through years during the few moments for which he held his head under water was not estimating the lapse of time by any objective measure of duration. Dr. Venn allows similar exceptions to the rule that probability implies reference to a series (*op. cit.*, p. 152). The exceptions are less important than might be expected in virtue of a conception of which Mr. Keynes has not made much use, that of "Cross-series" (Venn, *op. cit.*, pp. 147-148). "We are very seldom called upon to decide and act upon a single contingency which cannot be viewed as being one of a series." "A man, say, buys a life annuity, insures his life on a railway journey, puts into a lottery, and so on." It may be expected, I think, that the class of actions which cannot be regarded as part of a "series" will diminish with the increase of providence and sympathy (MIND, *loc. cit.*, p. 224).

From considering the normal character of belief we pass by an easy transition to the standard and tests of credibility. Probability, as Mr. Keynes rightly insists, is ever relative to some assumed premisses. A premiss may be subjective such as the belief in one's own existence. But the relation between the premiss and what may with more or less probability be inferred from it is "rational" or "objective" (pp. 8, 16, 97, *et passim*). I have suggested (MIND, *loc. cit.*, p. 225), that the first principles of credibility are like those of conduct which according to Mill do not admit of proof in the ordinary sense. "Considerations may be presented capable of determining the intellect either to give or withhold its assent" (*Utilitarianism*, p. 6, *cp.* p. 52). I must leave it to philosophers to enounce the considerations proper to the standard of credibility. Perhaps they will be found analogous to Hume's reflections upon *The Standard of Taste:* showing that amidst "the great variety of taste as well as of opinion" . . . "there are certain general principles . . . whose influence a careful mind may trace" (*Essays*, Green and Grose's edition, Vol. i., pp. 266, 271). More objective judgments no doubt are available when the scale of probabilities is finely graduated and the degrees are verified by observed frequency of occurrence.

II. À Priori Probability.

Some test of credibility seems to be required when we go on to consider the legitimacy of probabilities based on the

so-called principle of Sufficient Reason (which Mr. Keynes prefers to call the principle of "Indifference") without statistical verification by way of a "series". I have contended that Dr. Venn has gone too far in his scepticism with respect to these *à priori* probabilities. This contention now derives powerful support from Mr. Keynes' dialectic. He too maintains that Dr. Venn's scepticism goes too far (Keynes, p. 52). He has laid down rules for purifying this source of belief from the contradictions and anomalies with which it has been mixed (p. 61 and context). He points out that Dr. Venn is not consistent in his scepticism (Keynes, p. 100). To the passage in the *Logic of Chance* which Mr. Keynes adduces I may add the following. Seeking an analogue for the sporadic distribution of digits in the decimal places of the constant π, Dr. Venn supposes that we have a rod or line which we want to measure with the utmost accuracy. "We lay our rod against the scale and find it, say, fall between 31 and 32 inches; we then look at the next division of the scale, *viz.*, that into tenths of an inch. *Can we see the slightest reason* why the number of these tenths should be other than independent of the number of whole inches?" (*op. cit.*, p. 112. The italics are mine.) For another example, "we should *expect* rather than otherwise to find here (in a square root), as in the case of π, that incommensurability and resultant randomness of order in the digits was the rule, and commensurability was the exception" (*op. cit.*, p. 113). Now this sporadic distribution of digits is just the sort of assumption which I have postulated under the designation of "*à priori*," or better "unverified," probability (*cp.*, Article on *Probability*, *Encyclopædia Britannica*, edition 11, §§ 6, 132).

The principle is of wide application in Economics and other branches of Social Science. Thus Prof. Pigou relies on a presumption of the nature of "unverified probability" that "conclusions about the effect of an economic cause upon economic welfare will hold good also of the effect on total welfare" (*Wealth and Welfare*, p. 11). In a recent review of Mr. Keynes' *Probability* he rests on the same sort of evidence the assumption that "curves of demand and supply are likely to be continuous," that there is "some definite relation between the elasticity of demand at a point taken as known and the elasticity at neighbouring points" (*Economic Journal*, vol. xxxi. (1921), p. 512). I have submitted other examples in several numbers of the *Economic Journal*, to which references may be found in the *Journal of the Royal Statistical Society* at a passage in which I point out that *à priori* probabilities are involved in a generally accepted

argument concerning the distribution of velocities in a medley of colliding molecules (vol. lxxxiv., 1921, p. 81; *cp.*, 1922, vol. lxxxv., p. 483).

It may be observed that in general, for instance in all the applications which have just been noticed, the use of *à priori* probabilities has no connexion with inverse probability. That conjunction does occur in one very important branch of Probabilities—that which deals with errors-of-observation. As Laplace remarks (*Essai Philosophique*), this is the part of our science which involves the most difficult and delicate analysis. The treatment of this subject was one of the principal objects to which his great work, *Théorie analytique des probabilités* was directed (*loc. cit.*).

A very simple illustration of the problems involved will be sufficient here. Let there be given several observations each standing for, purporting to be, the measure of some magnitude —such as a distance or an angle—which it is required to ascertain. Thus to measure a required length, *e.g.*, a surveyor's base-line,

let OX_1, OX_2 . . . OX_n be n observations numbered, say, in the order of time in which they occurred. It is required to combine these observations so as to obtain the best value of OX the *quæsitum*.

There is to be distinguished the special case (connected with the name of Bernoulli) in which the observations stand (not as above for an absolute magnitude, but) for a *ratio, e.g.*, that of the black balls to all the balls in an urn containing only black and white balls. Thus OX_1 might stand for the percentage of black balls in a sample numbering a hundred taken at random from such an urn (each ball being returned to the urn after it has been drawn, unless the number of balls in the urn is indefinitely great); OX_2 would stand for the percentage presented by another sample, and so on. It is required to combine these observations so as to determine OX the ratio of black to white balls in the urn.

It is commonly taken for granted that *à priori* one value of OX is as likely to be the true value as any other. But there may sometimes be reason for doubting this. We may know beforehand the *whereabouts* of the *quæsitum;* in which case *à priori* equi-probability could only be predicated of a certain tract of values, say a portion of the horizontal line through O. A more exact statement is given below.

In the shadowy world of *à priori* probabilities our author has made some remarkable explorations which are relevant to the problems now before us. First, in the special case above distinguished, he argues that the distribution of *à priori* probabilities is not, as commonly assumed by the classical writers, the equi-probability of each *ratio*, but that of each "constitution" in Boole's sense (p. 57). It follows that "an approximately equal number of black and white balls is *à priori* more probable than a large excess of one colour" (p. 50; *cp.*, Boole, *Laws of Thought*, p. 370). Again, still with reference to our special case, c being a character compounded of a and b between which there is no association, if x is the probability of a, y of b, z, the probability of c, $= xy$. Then if all values of x and likewise of y between certain limits are equally probable, the values of z are *not* so distributed (p. 381). Likewise, in the general case, if one variable, say specific volume, has its values equally distributed *à priori*, then a variable which is a *function* of the first one, say specific density, does *not* so distribute its values (pp. 45-46. *Cp.*, *Encyclopædia Britannica*, Art. *Probability*, § 8).

These objections to commonly made assumptions are of considerable philosophical interest. But their practical importance with reference to the Theory of Errors is less than might be supposed for more than one reason.

First, when the magnitude for whose various values we claim equal probability is very large in comparison with the tract through which it varies, then it comes to much the same whether the equi-probability is claimed for the magnitude itself or for some (ordinary) *function* thereof—the square, or square root, or reciprocal, etc. For example, suppose it is sought to determine with precision the length of a pendulum known to within a tenth of an inch to be about a yard long. On the plausible assumption that the period of the pendulum (the time occupied by an oscillation) is *à priori* as likely to have one value as another (in the immediate neighbourhood of that period which corresponds to a pendulum a yard long), the *à priori* probabilities for the pendulum's length will not be distributed with perfect equality. Whereas the period is proportionate to the square-root of the pendulum's length, it may be shown that the probability of the pendulum having an assigned length l, meaning thereby a length between l and $l + \delta l$, where δl is a very small degree of length, is not simply $a\delta l$ where a is a constant (as it would be if the distribution were perfectly equal), but is proportional to the *reciprocal of the square root* of l = say $b\delta\lambda \div \sqrt{l}$, where b is a constant. Now by hypothesis, say, l lies between 36 + ·1 inches and

36 − ·1. Whence it is deducible that $b \div \sqrt{l}$ differs from $b \div 6$ by less than ·14 per cent. thereof. Accordingly the probability of l being the true value is *very nearly* δl multiplied by a constant; the *à priori* probabilities of the different values are practically equal.

A more general and important reason for the neglect of *à priori* probabilities in dealing with observations arises from the circumstance that, commonly and except when they are very unequal, they are masked and overruled by the *à posteriori* evidence which the observations afford if obtained in sufficient numbers. The matter is well put by Mill with reference to the case which we have distinguished as special. He is enquiring whether a certain event, such as a succession of aces, has been produced by accident, or by the alternative cause, loading of the dice. "We may be able to form a conjecture as to the antecedent probability (of loading) . . . but it would clearly be impossible to estimate that probability with anything like numerical precision. The counter-probability, however, that of the accidental origin of the coincidence, dwindling so soon as it does at each new trial, the stage is soon reached at which the chance of unfairness in the die, however small in itself, must be greater than that of a casual coincidence" (*Logic*, Book III., ch. xviii., § 6). Compare Bertrand's example of the inaccurate roulette-table (*Ency. Brit., loc. cit.*, § 46). The suppression of *à priori* probabilities, as we may call the incident explained by Mill, was almost simultaneously pointed out by Cournot (*Exposition de la Théorie des Chances*, 1843, § 95). It is recognised by Mr. Keynes (p. 388). It is extended by the present writer to the general case of magnitudes other than ratios (*À priori Probabilities*, *Philosophical Magazine*, 1884, vol. xvii., p. 204; *cp.*, *Journal of the Royal Statistical Society*, 1908, vol. lxxi., pp. 387, 392). The reasoning does not require the *à priori* values of the tract with which we are concerned to be very nearly equal; it suffices that they should not be very unequal (*Ency. Brit., loc. cit.*, §§ 8, 46). Even when a correction is prescribed by what is known about *à priori* probability, the correction is in general of an order which becomes negligible as the number of observations increases. In the common case of numerous observations the rôle of *à priori* probabilities might be illustrated by that of testimony as to the antecedents of candidates at a competitive examination for appointments not requiring special qualifications. A great number of candidates might be practically equal as to nationality, absence of any damaging record, and other antecedents.

The appointments would usually be given to those who did best at the examination; but occasionally the antecedents might affect the selection.

The assumptions involved in the usual treatment of errors-of-observation have been well stated by Mr. Keynes (p. 191, *et seq.*). Indeed, as I have pointed out elsewhere (*Journ. Stat Soc.*, 1922, p. 111), he has made a notable contribution to the mathematics of the subject; thereby vindicating a right to criticise the methods of the calculus which is hardly to be allowed to the mere logician. But I think he does not do justice to a very important application of the doctrine of errors, the method of sampling as now practised, by Dr. Bowley in particular. Here the ratios or other measurements of magnitude which the sample presents are treated as observations from which to ascend to the corresponding quantities for the total or "universe" from which the sample is taken at random. The danger attending statistical inference which our author so much dreads is here at a minimum. The inductive leap from the known to the unknown is particularly short; the suppression of *à priori* probabilities may be relied on if the sampling is thoroughly performed.

It is not irrelevant to remark that the suppression of *à priority* has some bearing on a controversy which has exercised great minds, concerning the so-called Rule of Succession. The unmeasured ridicule which is poured upon this Rule is deserved only when it is applied to "any experience *however limited*," and purports to prove that "if B has been seen to accompany A twice, it is two to one that B will accompany A on A's next appearance" (p. 82. *Cp.*, p. 28, note; p. 377, *et seq.*). But when the relevant *à priori* probabilities (p. 376) are overruled by the number of the observations, as may be shown by the reasoning above cited, the Rule of Succession is by no means so absurd. I am not sure but that it may still be used in the edifice of inductive science, not indeed as a foundation, but as one of the *cross-beams* in that complicated structure (MIND, p. 235). If so, with reference to large numbers of instances as supporting induction we may still say of the Rule in question with Sir John Herschel: "It is never without its instruction to trace this sort of parallel between mental impressions and abstract numerical relations" (*Edinburgh Review*, 1850, vol. xcii., p. 7; *Essays*, p, 376). I am not much moved by the objection that in this view Probabilities are made to support Induction, while Induction is required to support Probabilities. Two methods by their consilience may archwise mutually support each other. At

least the consistency of first principles may be shown by such demonstrations (*cp., Ency. Brit., loc. cit.*, § 25).

It remains to examine the logical basis of the *à priori* probabilities which we have been considering. I have maintained that the ground of those beliefs is a very wide experience, perhaps of the unconscious and even antenatal species, which some prefer to call intuitive knowledge (MIND, p. 229). This view is, I hope, not inconsistent with Mr. Keynes' description of the judgments derived from the Principle of Indifference as "direct" (pp. 53, 65, 70, 316). Provided that the cogency of the evidence is granted, I do not much mind what it is called. On the issue between intuitive and empirical with respect to the propositions in question, I am disposed to repeat what Sir John Herschel has said, in his review of Whewell's Philosophy, with respect to the issue in other cases: "it seems far from certain that this opposition of views is anything more than apparent. . . . On either view of the subject the mind of man is represented as in harmony with universal nature" (*Quarterly Review*, 184; *Essays*, p. 152). The followers of Mill may with the less scruple admit the language of intuitionism in the case before us since it is not claimed for *à priori* probabilities that they are "necessary" in a sense implying that they dispense with, and are not liable to be modified by the addition of, empirical evidence. It is agreed that *à priori* probability is generally negligible in comparison with the evidence of repeated observations—like the starlight which precedes and fades into the light of day.

III. The Logic of Statistics.

A priori probabilities not used in the same sense as in our second section are closely connected with our third section. The *à priori* propositions now relevant are prior not to all positive or specific experience, but only to that experience which forms the apparent immediate foundation of an induction. The inductions to be considered are those which establish the truth of those quantified generalisations which are presented by Statistics and by Dr. Venn called probability "series". There seems to be no essential difference between this statistical inference and the induction which establishes ordinary universal generalisations (*cp.*, Keynes, ch. xxvii. and p. 391). My only contribution to this logic is to insist, with Mill and others, on the part played in all our inductions by pre-existing knowledge (*cp.*, Mill, *Logic*, Book III., ch. iii., § 3; ch. iv., §§ 2, 3). This sub-

stratum may consist of the so-called direct or intuitive generalisations considered in our second section; or of generalisations which are the outcome of experience in the ordinary sense. Both kinds of pre-existent knowledge were noticed in MIND, 1884; and more explicitly with reference to statistical inference in a paper written a year later. An "abscission of certain antecedents as immaterial is constantly going on in inductive logic by . . . an almost unconscious process. It is presupposed in every act of the Method of Difference. The chemist rejects historical events as immaterial; the historian the conjuncture of the stars. There is in each case a vast substructure of previous knowledge of the connexion between things; not very prominent perhaps in treatises on logic, yet constituting the foundations of wisdom" (*Journal of the Royal Statistical Society*, December, 1885). So Dr. Marshall in an address on the "Graphical Method of Statistics" (in the Jubilee number of the same Journal, 1885) directs us to estimate the nature of the dependence of an observed event A on each of the possible causes B, C, D . . .; "our reason making use of that abstract and essence of past experience which is on the one side science and on the other practical instinct".

The view that pre-existing knowledge plays a great part in induction is convincingly reaffirmed by Mr. Keynes. It is well illustrated by the supposed irrationality of primitive peoples; really due to their want of previous relevant knowledge. Thus "it is a curious superstition" of a tribe in Borneo, as described by a recent pioneer, "to attribute anything that happens to them to something novel which has arrived in their country"; for instance intensely hot weather to the pioneer's arrival. "What is this curious superstition but the Method of Difference," pertinently asks Mr. Keynes.

Behind the inductive methods are the more essential principles of analogy or likeness, pure induction or repetition. Pure induction avails not without some finite initial probability in favour of the generalisation, obtained from some other source than the instances examined (pp. 238, 295, 302 *et passim*). A "finite probability," it should be explained, is "one which *exceeds* some numerical probability the ratio of which to certainty can be expressed by a finite number" (p. 237). It would come to the same, as I understand, to take as the condition that an indefinitely great *à priori* improbability does not attach to the generalisation which it is sought to prove. Or perhaps the latter statement is not equally stringent. For Mr. Keynes appears to rule out as not satisfying his condition a generalisation connecting the

weights of babies with their Christian names (p. 426). Yet no extreme improbability attaches to that generalisation. Certain Christian names popular among families of a particular race or sect might predominate among particular sections of the population. The inherited qualities of the race, or the habits enjoined by the faith, might be attended with peculiarities in vital statistics generally and in particular as to the weight of babies. So easy an explanation might not always be forthcoming. But, as in the case of conjuring tricks which we cannot explain, there may be a general *à priori* probability that there is an intelligible explanation. Of course it would not be contended that the observed uniformity would hold good outside the environment within which it was observed; it would not be true in every country that certain Christian names are attended with certain peculiarities of infant life. Parents could not even in the observed country secure that their children should be fat and well-liking by giving them names correlated with weight above the average. I concede to Mr. Keynes that the mathematical method of correlation as usually understood and practised does not avail to prove more than empirical generalisations.

But I think that he has somewhat underrated the power of the method to establish such generalisations. He puts a case which does not bring into action that grip of quantitative data which is characteristic of the mathematical method. Let us vary his illustration by imagining that there is observed a connexion between the number of ounces that an infant weighs and the number of letters in its name or names, on the supposition that the average infant has several names. Say the average number of letters is considerable, well above a dozen; and construct a table showing the frequency with which each number of letters in the full name is associated with each number of ounces in the weight of an infant. Suppose that this construction fulfils accurately the conditions of a *normal frequency-surface* with correlation-coefficient large and positive (*cp.*, Yule, *Theory of Statistics*, ch. ix.). Let the number of observations be large; and let the grouping pass triumphantly the criteria which may be applied to test whether it conforms to a normal error-surface. The case would thus present a complex and close resemblance to the more perfect exemplifications of normal correlation which are exhibited in recent treatises on Statistics. It may be expected therefore that our case will also resemble those examples in a certain stability, such that if you examine some fresh instances—in addition to the mass of observations

which evidenced normal correlation—the fresh batch would present much the same connexion between the attributes (in the case before us length of name and number of ounces) as was observed in the original large group. The inference, I think, would come under one of Mr. Keynes' general canons: that the more comprehensive the characteristics in which the instances are similar the stronger is the probability of the generalisation we seek to establish (p. 219).

Mr. Keynes has carried much further his enquiry concerning the nature and functions of analogy and induction. But I do not propose to follow him into this obscure region; which lies somewhat apart from the topics which are here reconsidered. But there is one tenet of the higher Logic which cannot be passed over by a writer on Chance. As the "peering eye of philosophy" is strained to explore the origins of knowledge there is dimly discerned a first principle which is of momentous interest to the student of Probabilities: "The character of material laws on which scientists appear commonly to act, seems to me much less simple than the bare principle of Uniformity (as to which see pp. 226, 255, 263). They appear to assume something much more like what mathematicians call the principle of the superposition of small effects, or, as I prefer to call it, in this connexion, the atomic character of natural law. The system of the material universe must consist, if this kind of assumption is warranted, of bodies which we may term (without any implication as to their size being conveyed thereby) *legal atoms*, such that each of them exercises its own separate independent and invariable effect, a change of the total state being compounded of a number of separate changes each of which is due to a separate portion of the preceding state" (p. 249).

Whatever the claims of this principle to be characteristic of the universe, it is at least congruous with the nature of things in so far as it postulates conditions required by, or at least conducive to, the realisation of a law which is or tends to be approximately realised throughout wide fields of existence, the "normal law of error". I so designate that grouping of statistics about their average, that relation between the extent of a deviation and its frequency, which Galton and many modern statisticians have made familiar. It seems best to restrict the term "law" in this connexion to the *conception* of that relation, the form of the curve (or, in more complicated cases, surface) which represents the grouping; as distinguished from the *proposition* which may be called the "theory" of error, that, given certain conditions,

the law will be realised. To which perhaps should be added the proposition (without which the theory would have no practical importance) that the conditions are fairly often fulfilled *in rerum naturâ*, sufficiently well for the (approximate) realisation of the normal law of error. The theory is to be distinguished from the doctrine, the false doctrine, that generally, wherever there is a curve with single apex representing a group of statistics—one axis denoting size, the other axis frequency—that curve must be of the "normal" species. The doctrine has been nicknamed "Quetelismus," on the ground that Quetelet exaggerated the prevalence of the normal law.

The conditions proper to the fulfilment of the normal law by a variable magnitude are two-fold: that it should depend upon a number of causes, and that those causes should be independent of each other. Or rather, as the term "independent" is here to be taken in each of two senses, there are three conditions: (1) The quantity conforming to the normal law should be a compound, composed of *numerous* constituent elements; (2) each element should fluctuate *independently* (in the sense proper to Probabilities) of the others; (3) the composition should be simple, the compound being a *sum* of the elements (or a sum of components each of which depends on—is a *function* of—a single element). The last two conditions are given by Mr. Keynes' axioms. In criticising the statistical side of his treatise (in the *Statistical Society's Journal*, 1922) I have complained that he has not adequately recognised the leading law of Statistics, the theory of error. I have now to add that he makes amends for that omission by showing the prevalence of the conditions which underlie that theory.

The significance of the conditions may be exhibited by considering their more or less perfect fulfilment in different spheres. With respect to errors-of-observation, errors *proper* as they may be called (as distinguished from "errors" used generically for deviations from an average), I quote from a high authority on Probabilities, Morgan Crofton (author of the article on the Theory of Probability in the ninth edition of the *Encyclopædia Britannica*). He is maintaining the hypothesis (consonant with our theory) that "errors (of observation) *in rerum naturâ* result from the superposition of a large number of minuter errors arising from a number of independent sources". He proceeds: "In coarse and rude observations the errors proceed from a *very few* principal causes, and in this case, consequently, our hypothesis will probably represent the facts only imperfectly,

and the frequency of the errors will only approximate roughly and vaguely to the law which follows from it" [referring to the normal law of error]. . . . "When these few capital occasions of error were removed" . . . astronomers "found that not three or four, but a *great number* of minor sources of error, of nearly co-ordinate importance, began to reveal themselves . . . errors of their adjustments; errors (technically so called) of observation [? due to the imperfection of the observer's senses]; errors from change of temperature, of weather, from slight irregular motions and vibrations; in short, the thousand minute disturbing influences with which modern astronomers are familiar." But "it is not enough for us to show that each error in practice is compounded of a large number of smaller errors; we must also show that they are *independent*, at least for the most part". Admitting that some of the errors may be interdependent he yet sums up "we may at least safely conclude that the hypothesis in question is not a mere arbitrary assumption, but a reasonable and probable account of what does in fact take place" (*Transactions of the Royal Society*, 1870, pp. 175-177). This conclusion is in accordance with the "atomic character of natural law" postulated by Mr. Keynes. It is assumed not that there is never correlation between the phenomena, but that "for the most part," or at least in good part, independence prevails. A similar explanation is available in a neighbouring department within which the normal law of error may be expected and is found—the distribution of shot marks on a target. The varying causes affecting the aim are like to those enumerated by Crofton; and there are additional independent causes affecting the flight of the bullet however well aimed, inequalities of charge, tremors of the air and so forth. If the barrel of a rifle is fixed firmly, and successive shots are fired so as to hit a target at some distance, it is found that the bullet-marks are dispersed; owing to the operation of the latter class of causes only. It is presumable that a like plurality of independent causes operates in a *third* class of instances, the organs and attributes of natural species, for instance the height of adult males in a homogeneous population, or other measurements as tabulated by a Galton or Pearson. The causation by which the magnitudes of inherited attributes are distributed may perhaps be illustrated by a sort of heredity which occurs in a *fourth* sphere favourable to the genesis of the law-of-error, the movement of molecules in a free gas. The velocity of a molecule at any time may be regarded as the offspring of two parent velocities, namely the velocity of the molecule itself before its

latest collision with another, and the velocity of that other before the collision. The two parents were likewise sprung each from two parents; and so on. The velocities of the system at any moment may be regarded as simply compounded of numerous elements fluctuating independently (*cp.*, "Applications of Probability to the Movement of Gas Molecules," *Philosophical Magazine*, Sept. 1920; and "Molecular Statistics," *Journal of the Royal Statistical Society*, Jan. 1921). It is no wonder therefore that the law-of-error should be found in great perfection in a medley of molecules; visible to the eye of reason, and almost to the natural eye through their action upon visible granules ("Brownian" movements).

This theory deserves the attention of philosophers as affording a particularly unequivocal and striking instance of positive knowledge that seems to be obtained *à priori* or by intuition. It seems as if "it might have been certainly known to be true independent of experience"; what Whewell claims for the Newtonian first law of motion. Of course Whewell did not mean that we obtain the particulars of any instance *à priori*. Through sensation, or from some other empirical source, we ascertain the minor premiss that there is no obstacle impeding the motion of a certain body; and then by the first law of motion given *à priori* we conclude that the body will go on moving at a constant rate. The theory is not falsified because in everyday life we do not often meet with a vacuum. So in the theory now under consideration what is supposed to be given *à priori* is not the fact that a certain magnitude is a compound of numerous constituent elements, but that, if it is a compound, the components will be independent of each other "for the most part" as Crofton has it, or at least adequately for the genesis of the law of error when the number of components is considerable. The fact that the normal law of error is not very commonly realised in great perfection is not fatal to the theory of error as here defined, but only to the false doctrine of "Quetelismus". Where only "a *very few* principal causes," in Morgan Crofton's phrase, are present, there, as he admits, "our hypothesis will probably represent the facts but imperfectly".

We have thus a new instance of *à priori* evidence claimed for propositions outside pure mathematics and metaphysics. The new instance is more striking and paradoxical than the one presented by the Principle of Sufficient Reason. For no one can doubt but that the propositions now before us—the fact for instance that the heights of an adult male popu-

lation conform to a certain simple formula—are *matters of fact* rather than *relations of ideas*—to use the antithesis strongly marked by Hume when defining the province of experience (*Concerning human intellect:* Sceptical doubts, pars. 1 and 2 *et passim*). That positive knowledge should be deducible from axioms of a seemingly metaphysical character is certainly most remarkable. We seem to be reverting from modern physics to the natural philosophy of the ancient Greeks. But the anomaly and anachronism disappear if the second instance, as well as the first (MIND, *loc. cit.*, p. 229), is explained as a case of induction, induction of the kind which Mill regards as adequate to support the propositions claimed by Whewell as *à priori:* "experimental proof crowds in upon us in such endless profusion, and without one instance in which there can be even a suspicion of an exception to the rule" (*Logic*, Book II., ch. vi., § 4).

IV. APPLICATION OF PROBABILITIES TO CONDUCT.

The use of "mathematical expectation" as a guide to conduct is the principal application which we have to consider. "In order to obtain a measure of what ought to be our preference in regard to various alternative courses of action we must sum for each course of action a series of terms made up of the amounts of good which may attach to each of its possible consequences, each multiplied by its appropriate probability" (p. 311). Against this maxim Mr. Keynes brings three objections of which the first two appear not very formidable.

First, there is renewed with respect to the product of probability and prospective good a difficulty which we have already encountered—and, I trust, overcome—the difficulty ascribed to the want of numerical precision. "Normal ethical theory at the present day, if there can be said to be any such, makes two assumptions: first, that degrees of goodness are numerically measurable and arithmetically additive, and second, that degrees of probability also are numerically measurable" (p. 311). There seems to be here set up, in order to be knocked down, a somewhat exaggerated claim on behalf of utilitarian ethics. With respect to the second factor of Expectation, *viz.*, Probability, we need not postulate greater precision than we have already claimed on the model of physical mensuration as interpreted by Profs. Eddington and Love. The authority of Poincaré may be quoted for treating satisfaction (subjective good) in the same spirit. In a letter to Walras (the mathematical economist)

the great mathematician rules: "Satisfaction then is a magnitude, but not a measurable magnitude". But it is not "par cela seul exclue de toute spéculation mathématique" (see *Economic Journal*, 1915, p. 57, for reference and fuller quotation). It deserves, indeed, to be considered whether, when we are dealing with this subjective quantity, the use of a unit such as I have proposed (*Mathematical Psychics*, Part II.), namely the "just perceivable increment" (of pleasurable feeling), does not come to much the same as the use of subdivisions analogous to those employed by Prof. Eddington with respect to physical quantity. "The subdivision," he writes, "must be continued until the meshes are so small that all points in one mesh can be considered identical within the limits of experimental detection" (*Space, Time and Gravitation*, p. 77). But without insisting on these refinements, is it not evident that without having more exact relations than those of "more" and "less" we can infer that the product of a and b, ab, is greater than $\alpha\beta$ if it is given that $a>\alpha$, $b>\beta$? We can make this inference even without the second datum, if it is known that a is very much greater than α, while b is known not to be much greater than β. As before about magnitudes of one dimension, may there not be clear perceptions of greater and less without numerical precision? To go back to the heroic age, if Priam saw that Ajax was taller and broader than the other Greeks, would he not perceive that the area subtended by the figure of Ajax was greater than that of the others? Might he not have observed the same of Ulysses compared with Agamemnon, if the former, though (slightly) shorter, had been (very much) broader than the latter:—

> "Μείων μὲν κεφαλὴν Ἀγαμέμνονος Ἀτρεΐδαο,
> Εὐρύτερος δ' ὤμοισιν ἰδὲ στέρνοισιν ἴδεσθαι." (Iliad III., 193-4.)

A second difficulty is raised in connexion with what is termed the "Weight" of a probability. "Weight" is defined by the statement that "an accession of new evidence increases the *weight* of an argument" (ch. vi.). How should we be influenced in our choice of a course of action by the "weight" of that probability which is a factor of the Expectation? The question may be answered in terms of the analogy presented by the theory of errors-of-observation. Suppose that there are given a finite number of observations, which it is required to combine so as to obtain the best possible value for the object under measurement. It is not necessary with our author to fix attention on the most probable value, and the probable error as measured therefrom

(p. 74). It is better, as I have elsewhere pointed out, with Laplace to seek, not that combination of the given observations which is most probably (most frequently in the long run of similar data) right, but the one which, minimising the detriment incident to the use of fallible observations, maximises the Expectation of useful results. In short there is applied to the treatment of observations the principle which should govern all conduct considered as part of a "series," a rule to be universally adopted. The significance of Laplace's conception appears in Simon Newcomb's estimates of the "Good" and "Evil" pertaining to astronomical observations (*American Journal of Mathematics*, vol. viii., no. 4). As a first-rate mathematical economist the great astronomer was prepared to handle quantities less definite and measureable than the objective magnitudes with which the physicist has usually to deal. In the common case of numerous observations mathematical theory affords an *index* of the detriment. In general that detriment increases with the increase, and decreases with the decrease, of the "spread" or "scatter" of the observations as defined by the mean square of their deviation from the true point. Thus in the example given in our Section II. (if OX = x) the mean square of deviation is

$$\{(x - x_1)^2 + (x - x_2)^2 + \ldots + (x - x_n)^2\} \div n.$$

Now let us suppose that the mean square pertaining to (observations made with) a particular instrument has been ascertained from a long series of trials prior to the measurement for which we have to prescribe. The longer the series (*ceteris paribus*), the more accurate will be the determination of the mean square of error. Let us take the *reciprocal* of the mean square as index of the *worth* of a measurement with that instrument (what is called "weight" by Laplace and his followers); and let us say that the "evidential weight" (Keynes, ch. vi.) of "worth" is greater the more extensive the previous experience on which it is based. Then of two instruments or methods of measurement for which the ostensible *worth* is the same that one is to be preferred for which the *evidential weight* is greater. But, if there is a difference in worth as well as in evidential weight, it is conceivable that a measurement of somewhat less worth but considerably greater evidential weight than another might be preferable to that other. I leave it to the reader to construct an analogue of this mathematical theory applicable to ordinary life.

It will be found, I think, that the second objection only gives us pause when it is associated with the *third*, that

which arises when an action is regarded as solitary, not forming part of a long run or "series". To exhibit this difficulty is, I think, the main purport of the Petersburg problem; though not the only lesson which it conveys. The problem is thus stated by Mr. Keynes: "Peter engages to pay Paul one shilling if a head appears at the first toss of a coin, two shillings if it does not appear until the second, and in general 2^{r-1} shillings if no head appears until the rth toss. What is the value of Paul's expectation?" (p. 316). The mathematical answer is: if the number of tosses is not in any case to exceed n in all, $\frac{1}{2}n$ shillings; and if this restriction is removed, an infinite sum. Mr. Keynes appears to great advantage in the discussion of this problem; his logical acumen enhanced by his unusually wide acquaintance with the foreign literature of Probabilities. I take as a text for some general reflexions his summary of the different reasons which have been assigned for the fact that (n being large) no sensible person would give for Paul's chances anything like the mathematical expectation. "Each of the above solutions probably contains a great part of the psychological explanation. We are unwilling to be Paul partly because we do not believe Peter will pay us if we have good fortune in the tossing, partly because we do not know what we should do with so much money or sand or hydrogen if we won it, partly because we do not believe we ever should win it, and partly because we do not think it would be a rational act to risk an infinite sum or even a very large sum for an infinitely larger one whose attainment is infinitely unlikely" (p. 319).

I take these points in the order of the summary.

We do not believe that Peter will pay us a sum which may be vastly in excess of his means. This objection is met by the ingenious suggestion which Mr. Keynes cites from a foreign authority that the stakes should be (not shillings or francs, but) grains of sand or molecules of hydrogen (p. 317).

We should not know what to do with so much money or sand, we might have a surfeit of winnings, by reason of the law of diminishing utility; which was, I believe, first formulated in connexion with the Petersburg problem. Referring to the law that the value of a sum of money to a man varies with the amount he already possesses, Mr. Keynes asks "Does the value of an amount of goodness also vary in this way? May it not be true that the addition of a given good to a man who already enjoys much good is less good than its bestowal on a man who has little?" (p. 320). This *ἀπορία* recalls the precept of the late Cohen Stuart for dis-

tributing the burden of taxation; that each taxpayer should forgo, not an *equal amount* of satisfaction, but, an *equal percentage* of the total satisfaction which he derives from his income (see *Economic Journal*, 1897, p. 559 and context). Cohen Stuart's criterion has been adopted by some sensible persons, notably Prof. Seligman, and the late Leonard Courtney.

We do not believe that our winnings will ever be immense, if we hold with D'Alembert and Dr. Marbe (pp. 317, 365) that long runs are not only very improbable, but do not occur at all. Experiment gives no colour of verification to this statement. Yet *à priori* on grounds of general experience I am prepared to find that some sort of periodicity in the manner of making the experiments, the way of projecting the coin, for instance, would result in a certain *correlation* between the observations; and accordingly that the convergence of the average, and likewise the frequency of runs, would not be exactly what the regulation formula enounces (in terms of n the total number of tosses). This consideration would not indeed rule out indefinitely long runs. Still, as Dr. Venn observes in this connexion (*op. cit.*, p. 83), "there are so many instances in nature of proposed laws which hold within narrow limits but get egregiously astray when we attempt to push them to great lengths, that we must give at best but a qualified assent to the formula". Accordingly I am not disposed with Mr. Keynes to dismiss as trivial the observations obtained by recording the results of trials made with instruments of chance (p. 366). This experience may satisfy not merely "a certain idle curiosity," but also a certain scientific interest. One would like to know, for instance, the explanation of the difference between the results of Prof. Pearson's and Dr. Marbe's investigations. The former, on examining 33,000 coups at the roulette table of Monte Carlo, found the frequency of long runs greatly in excess of the regulation proportion; the latter, on examining 80,000 coups, found that the long runs were greatly in defect (p. 365).

The lesson which the Petersburg problem is specially adapted to convey is connected with the *third* and most serious of the objections to the use of mathematical expectation as the guide of action. It is seen to be no longer a safe guide in the case of transactions which cannot be regarded as forming part of a "series" in Dr. Venn's sense. How far the proposed case is from fulfilling that condition will appear if we consider what changes of statement would be required in order to render the problem amenable to the

calculus of probabilities. We should suppose that the offer made to Paul is renewed from time to time; say repeated every day throughout a whole year. Also the amount that he can possibly win on any one day should be finite and moderate. Say, Peter will give the same as before in case Head turns up at the first, second, third, or fourth toss; but that if it turns up after the fourth toss, however long after—however long the run of Tails—Peter will still give no more than he will give if Head turns up at the fourth toss, that is, 8s. Then Paul's Expectation is shown by the following scheme:—

Winnings . . .	1	2	4	8
Probability . .	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$

Multiplying each figure on the upper line by the corresponding figure on the lower line, and adding the products, we obtain for the amount which Paul may expect to win in the course of the year $2{\cdot}5 \times 365 = 912{\cdot}5$s. It may be shown that the odds against his winnings not falling below 730s. in the year are thousands to one. He might count on not losing if he offered 2s. a day for the expectation; on gaining materially if he offered only 1s. 6d. Now restore the terms beyond the fourth toss; and as before let Paul have a chance of 1 in 16 of winning 8s., 1 in 32 of winning 16s., and so on. There will reappear prospects which cannot be fitted into a "series". *A fortiori* if the number of days on which the trial is made were smaller. In such a case it is rightly decided, I think, by Mr. Keynes that "even if we are able to range goods in order of magnitude and also their probabilities in an order of magnitude," yet it does not follow that the product of each good and the corresponding probability is the measure of expediency, or "oughtness". "A new direct judgment" may be required to combine properly the judgment of goodness and the judgment of probability (p. 316).

Now to which type, the Petersburg problem or our curtailed version thereof, do actions in real life belong mostly? The former is certainly altogether unparalleled. The latter too appears extreme in the opposite sense. "Series," and still less "cross-series," are not so perfect as to make the realisation of the mathematical expectation a practical certainty. In private life occasions occur requiring that we should act for the nonce so to speak, or at least without anticipating a succession of similar actions which would afford a practical certainty of advantage in the long run. In public life the same sort of choice may occur. Two persons may agree as to the ends which are desirable. They may

agree too as to the probability that certain means, say some very progressive measure, will bring about the desired ends. Yet they may differ as to the advisability of adopting those means. One may think the other a fool. But there is no recognised canon of wisdom whereby to test folly in such cases. Utilitarian philosophy has been too silent about this difficulty.

Conclusion.

As the outcome of the preceding discussions the following summary answers to the enquiries stated at the outset are in conclusion submitted:—

(1) That probability in general presents gradations has not been disproved. It seems usually possible to arrange probabilities relating to different cases, if *in eodem genere*, in an order of magnitude, to say that one is greater than another. The examples adduced by Mr. Keynes show, indeed, that the degrees of belief are often few and far from fine. Thus when we cannot forecast the weather, the barometer being high but the clouds black, when accordingly we hesitate between the actions proper to rain and to fair weather (Keynes, p. 30), is not our state of belief intermediate between two degrees of practical certitude: that it either will or will not rain? Outside these degrees lie in general the two extreme limits formed by absolute or mathematical certainty, denoted respectively by 0 and 1. With respect to position on this sort of scale, probabilities which are not *in eodem genere*, for example the probabilities of two propositions of which one rests more on number of observations, the other on completeness of analogy (*loc. cit.*), *do* seem to admit of comparison. The question whether the judgment that one event is more likely than another implies the belief that in the long run that one will occur more often than the other must be answered—if a simple direct answer is required—in the negative. And yet there is often present, or apt to be presented, some reference to frequency of occurrence. Thus in the above instance of our judgment about the doubtful prospects of the weather we should be prepared to find that in exact meteorological records the observed signs—high barometer with black clouds, of a certain description—would as often as not (in the same locality and season and *ceteris paribus*) be followed by rain as by fair weather. According as probabilities are more finely graduated and more fully based on statistical experience the determination of that degree of probability which it is proper to attach to given

evidence approaches the character of objective science. Otherwise our judgments about probabilities have only that sort of universality which belongs to the standard of taste in art.

(2) New light is thrown by Mr. Keynes on the *à priori* probabilities, sometimes ascribed to the Principle of Sufficient Reason, which play a considerable part both in social science and in Physics. He strengthens the defence of these propositions against Dr. Venn's polemic. At the same time Mr. Keynes exhibits and guards against the errors and exaggerations to which the Principle of Sufficient Reason has often led. He confirms by a new argument (p. 381) the objection that, if (as commonly assumed in dealing with errors-of-observation) one value of a measurable object is as likely *à priori* to be the true one as another, then any *function* (*e.g.*, the square or the square-root) of that object—or any function (other than simple addition) of two or more magnitudes (*e.g.* their product)—will not comply with assumption. One value of the function will not be *à priori* as probable as another. And yet the function of an object is itself an object. If we supposed that for each kind of variable—length, area, angle, and so forth in each variety of circumstance—there is *some* function of the measurable object which has *à priori* equally distributed values, we might understand equi-probability of distribution as true in a sense on the average of all cases. But it is sufficient to postulate in each case that the *à priori* values are not distributed *very unequally*. Any ordinary degree of *à priori* inequality will be effaced by a correspondingly large amount of *à posteriori* observation. This effacement of *à priori* evidence through the multiplication of instances seems to justify the "Rule of Succession" when employed as a verification of induction based on repeated observations.

(3) Dealing with the Logic of Statistics, Mr. Keynes reaffirms effectively the important truth that the Methods of Induction are largely dependent on pre-existent knowledge. Part of the "abstract and essence of past experience," to use the phrase of Dr. Marshall, is the circumstance that lines of investigation often do not cross each other. There are water-tight compartments in Nature. The chemist may perform his experiments without attending to the conjunctures of the planets. This character of natural law seems closely connected with that *independence* which plays a great part in Probabilities. Independence is the prime condition for the fulfilment of that "law of error" (or deviation of magnitudes from their average) which Quetelet and Galton

have celebrated. That an ἀρχὴ so little Baconian as Mr. Keynes' "atomic character of natural law" should support a generalisation so positive and matter-of-fact as the fulfilment of an arithmetically expressed formula by objects in Nature is a paradox deserving the attention of philosophers.

(4) The use of mathematical Expectation as a guide to conduct is not barred by the difficulty of obtaining precise data. Nor does much practical importance attach to a scruple which may be expressed by reference to errors-of-observation, as follows. For the purpose of measuring an object we ought (*a*) to prefer that instrument or method of which the precision or *worth* is greatest. Supposing now that this worth is inferred from the behaviour of the compared instruments or methods in the course of experience prior to the measurement in hand, we ought (*b*) to prefer that one for which the worth is most accurately ascertained; other things and in particular the preference prescribed under head (*a*) being the same. But what if as between two alternatives one excels in respect of (*a*), the other of (*b*)! Much more serious is the difficulty which arises when we have to prescribe for action which cannot be regarded as part of a "series"—a long run in the course of which the Expectation will be realised. This ἀπορία forms the main (though not the only) interest of the Petersburg problem. Mr. Keynes well argues that some principle, other than mathematical Expectation, is required as the guide of conduct in such circumstances. Utilitarian philosophy has not hitherto furnished such a principle.

There are many other points in Mr. Keynes' treatise which call for notice. But I am not writing a review of the treatise; only examining how far the novelties therein require modification of my own previously expressed views. I will, however, mention some of the topics passed over; in the hope that they may be discussed by some of the philosophers who read MIND.

I have already alluded to an investigation which I did not follow up, that which relates to the use of Analogy (Keynes, Part III.). Another promising enquiry relates to the nature and measurement of Risk. What value attaches to the "conventional coefficient of weight and risk" given in this connexion? (p. 315). This is one of the many questions concerning the use of scientific language which confront this reader of the treatise. What is the value of the Symbolism which pervades the book? Is it as helpful to the student of Probabilities as mathematical symbols are to the student of Economics? In making this comparison the

mathematician must take into account that in the one case, that of mathematical economics, he already knows the symbolic language; whereas in the present case he has the trouble of learning a new language. What advantage is obtained by proposed changes of nomenclature; in particular the peculiar use of the term "correlation," and the attribution of probability to the truth of a *proposition* rather than the arrival of an *event?* Many interesting questions are suggested by the rehandling of classical problems. Thus with regard to the application of Probabilities to Testimony, when Mr. Keynes argues that in certain cases the "conventional formula" is admissible, does he materially reduce the "opprobrium of mathematics" which Mill attributes to the classical theory of testimony? Would Mr. Keynes stand by the answer which he gives to the argument used by De Morgan after Laplace concluding that "there was a necessary cause in the formation of the solar system for the inclinations being what they are" (so nearly identical)? "The answer to this," says Mr. Keynes, "was pointed out by D'Alembert" . . . "De Morgan could have reached a similar result *whatever* the configuration might have been" (pp. 293-294). A whole host of questions are raised by the author's criticism of his predecessors.

I cannot pass over as irrelevant to the present study the topics included in the last comprehensive heading. I cannot consistently with views above expressed appear to acquiesce in the frequent disparaging remarks and occasional sweeping denunciations which the author bestows on his eminent predecessors. Laplace, Poisson, Quetelet, Cournot, Mill, Jevons, and many others, even his favourite author Lexis in one passage at least (p. 401), all according to him have gone astray. I find it, indeed, necessary to defend myself against the imputation of attaching too much importance to the opinions of one who attaches so little importance to the opinions of the leading authorities on the subject. The imputation would no doubt be serious with respect to some sciences. But it is a peculiarity of our study, one which it shares with economics, that you can retain respect for one who speaks disrespectfully of high authorities. In explanation of this peculiarity it may be remarked that the classical writers in both subjects often express themselves carelessly. Ricardo, as Dr. Marshall has said, was too spare of words. He did not always duly emphasise the distinction between long and short periods. He left it to be inferred that he understood the part played by Demand in the determination of Value. Similarly Poisson in a passage criticised by Mr.

Keynes (p. 348) omits from his statement of a problem a condition which was obviously present to his mind. Laplace and some of his followers probably understood the nature of antecedent probabilities and the necessity of taking them into account better than might be supposed from their elliptical expressions. In criticising the classical writers some "generosity," in Dr. Marshall's phrase, is required. But while preaching literary generosity let us not be unjust to those who are deficient in that quality. We must admit that intellectual sympathy does not always go with originality. Of wide application is what Jevons said of some censorious genius: his own opinions are much more valuable than his opinions about other people's opinions. Censoriousness is especially venial when it refers to faults not inferred from omission, but actually committed. The distinguished living economist who thought it worth while to point out (among other criticisms of the classical economists) that a passage in Mill's chapter on Rent (*Pol. Econ.*, Book II., ch. xvi., § 3, par. 1) is inaccurate remains a distinguished economist. Some of Mr. Keynes' criticisms seem to be of this type; not damaging much the reputation of either author or critic. A parallel to Mr. Keynes' depreciation of Laplace may be found in the work of an original economist whom Mill praises highly for his illuminating views on *Capital*, Dr. John Rae. Like Mr. Keynes, Rae does not mince his expressions of dissent. "Unsoundness of the system maintained in the *Wealth of Nations*" . . . "detected fallacy in the speculations even of Adam Smith" . . . "fundamental error in the general principles of his system" . . . "inconsistencies and contradictions" . . . "all along erroneous"—such are among the expressions referring to the Father of Political Economy. And yet Rae is praised in the highest terms by J. S. Mill. Mill's words may be transferred, with the alteration of a name only, Laplace being substituted for Adam Smith, to the case before us. "The author unites much knowledge, an original vein of thought, a considerable turn for philosophical generalities. . . . The principal fault of the book is the position of antagonism in which, with the controversial spirit apt to be found in those who have new thoughts upon old subjects, he has placed himself towards Adam Smith. I call this a fault (though I think many of the criticisms just and some of them far-seeing). . . ."

II.—SENSE-DATA AND SENSIBLE APPEARANCES IN SIZE-DISTANCE PERCEPTION.

By H. N. Randle.

By sense-datum or pure sensation seems to be meant a hypothetical psychical process corresponding to, or a function of, an elementary physiological process. It is usually admitted that no one ever experiences a sense-datum in its purity, but it is sometimes suggested that we approximate to such an experience when we break through the habitual nexus of associates so that the sensory element appears in a novel setting: as, for example, when we turn the printed page upside down, and regard the S's and the 8's in this novel position. Certainly the sensible appearance changes under changed conditions, but it is a question whether the novel sensible appearance is ever any nearer to being a pure sensation than is the familiar sensible appearance. It might be thought that the appearance of the inverted S or 8 approximates to the pure sensation because it is a more accurate representation of the actual "retinal image," and therefore can more truly be described as a psychical process which is a function of the elementary physiological process, *i.e.*, of the retinal image. I propose in what follows to consider the size-distance percept with special reference to the assumption that there are to be found in it sense-data as defined above.

I begin with the phenomenon of the diminished sensible magnitude of an object in monocular vision when the eye is accommodated for a nearer point. With one eye closed place the point of a pen midway between the other eye and a page of print, keeping the eye fixed on the pen-point. What happens, then, is that the print becomes amazingly small. I still regard this as an unquestionable example of sensible appearance of magnitude varying in complete independence of the size of the retinal image, although it was suggested to me[1] that the shrinkage could be explained on optical prin-

[1] By Mr. W. G. P. Wall, of the Indian Educational Service.

ciples, since the increased curvature of the lens as accommodated for the very near pen-point must result in the image of the print (beyond the pen-point) now coming to a focus in front of the retina instead of on the retina: the image thus formed in front of the retina being smaller than the image which is formed on the retina when the eye is accommodated for the print. Some blurring occurs, such as should occur when an image comes to a focus in front of (or behind) the retina.

And yet the explanation involves a difficulty of a fundamental character, if offered as a *physiological* explanation of the shrinkage in sensible size, as corresponding with a shrinkage in the retinal area affected. For the optical 'image' of smaller size formed in front of the retina, is not a physiological fact at all. The only physiological fact that could concern us would be the image as formed on the retina: and this would not be a decreased, but a blurred, image. If we are conscious of the smaller 'image' (in the optical sense), then our 'sensation of extensity' corresponds to something which is certainly a physical and objective fact, but (quite as certainly) is not a physiological fact. To put it plainly we should see an 'image' which is not on the retina at all.

And this explanation cannot be given of the same phenomenon as it occurs in binocular vision,—both eyes now converging on the nearer pen-point. The same shrinkage of objects beyond fixation-point occurs; and it is usually stated that it can occur without any blurring at all, in the case of an observer who can dissociate near convergence from near accommodation; that is, who can converge his eyes on the pen-point, and yet keep the lens accommodated for the print. I cannot do this, and therefore cannot verify this statement.

Other examples, in which the necessity of a 'psychological' as opposed to a 'physiological' explanation seems to be generally admitted, are to be found in the varying appearances of the visual after-sensation according to the plane and direction of projection. "Produce an after-image of the sun, and look at your finger-tip: it will be smaller than your nail. Project it on the table, and it will be as big as a strawberry; on the wall, as large as a plate; on yonder mountain, bigger than a house. And yet it is an unchanged retinal impression."[1] It is impossible to assign a fixed extensity-value to the retinal impression in this case for the image "feels" amazingly expanded (or contracted) under the different

[1] James, *Principles of Psychology*, II., p. 231.

conditions of projection. The feeling of magnitude here is certainly not a function of the magnitude of the retinal impression. And a still more striking case of the determination of the sensible appearance by psychological conditions and its independence of elementary physiological processes, is provided by the changed shape of the after-sensation according to the direction of its projection. If an after-sensation of a cross with the arm at right angles to the upright be formed and projected upon the upper corner of the wall, the cross is seen slant-legged.[1] The retinal impression remains presumably the same in whatever direction the eyes turn, but the "sensory value" of the retinal after-image differs in strict correspondence with the direction of the eye. The sensory variation in such figure-direction percepts must receive a psychological explanation. Such illusions as the Zöllner pattern and the Müller-Lyer illusion provide other familiar examples of psychologically conditioned sensible appearances.

The fundamental importance of these facts for a theory of perception is not sufficiently realised. They tend to be treated as exceptional cases, interesting psychical curiosities, but essentially different, in their generative conditions, from normal perceptions. But so far are such cases from being exceptional that in them sensible appearance reveals its true character in unambiguous clearness; so much so, that to realise thoroughly their typical character is to achieve a revolution in standpoint. The common feature in such cases is the impossibility of finding any fixed 'sense-datum' corresponding to the retinal impression. And what is here submitted is that this feature is not the exception, but the rule; that there never is any fixed relation discoverable between an elementary physiological process and an elementary psychological 'sense-datum'.

There is, of course, nothing new in this position. On the contrary physiology now-a-days seems to have advanced definitely to the conception of the integrative functioning

[1] James (*Principles*, vol. ii., p. 283) points out that "our retina now holds the image which a cross of square shape throws when in front, but which a cross of the slant-legged pattern would throw provided it were actually on the wall in the distant place at which we look". Elsewhere he remarks (vol. i., p. 263) that "no object not probable, no object which we are not incessantly practised in reproducing, can acquire this vividness in imagination". You cannot therefore make the after-sensation of a straight line appear bent by projection on the angle of wall and ceiling, because real straight lines never do look bent under any circumstances. (Pathological conditions in retinitis will distort an objective straight line, see Myers, *Exp. Psych.*, p. 227.)

of the nervous system, and physiological atomism appears to have become as obsolete as psychological atomism is often asserted to be. But popular psychology is still under the influence of a way of thinking which the professed psychologist has rejected; and perhaps this influence, even now, prevents us from fully realising how the problem which Hume set to Kant has been changed by a process of psychological analysis which has gradually undermined Locke's "way of ideas"—or at any rate its sensationalistic starting-point. For to deny that there is any elementary mental fact which is a fixed function of an elementary physiological fact is to deny the existence of the sense-datum.

I turn now to the assertion that there are in consciousness primitive sense-data corresponding to the retinal impression —direct feelings of retinal magnitude, for example—but that these are obscured by perception of real size, or imagined "normal sensible appearance"; and that we can by introspective effort or training become aware of these "primitive sensibles" even in cases in which they are ordinarily eclipsed by the normal sensible appearance. To put it concretely, I cannot help "seeing" the corner of the ceiling of this room as a right angle: and yet, it is said, if I had had the advantages of James' young draughtsman[1] I should be able to "see" it as an obtuse angle: to feel directly the retinal direction of the lines. Therefore the retinal direction of the lines must be present as a primitive sensible element in consciousness, otherwise the young draughtsman could never learn to feel it directly.

So far as I am concerned, I am convinced that I cannot learn to feel the "retinal direction" of the lines in such cases, however hard I try. I simply *must* see the angle as a right angle, and I can only draw it perspectively by methods of trial and failure which are guided by my knowledge of the perspective law that the vertical lines which bound the wall, being real parallels, must recede as they get further from me, and of the fact that the upper part of the wall is further from me than the lower part. If I want to "see" the perspective effect I can do it only by visual superposition,—as the artist measures perspective magnitudes by a length of his pencil held between eye and object. And I see no reason to suppose that the artist may have a capacity in which I seem to myself to be very deficient, of introspectively perceiving the perspective or retinal values of objects.[2]

[1] James, *Principles*, vol. ii., p. 179.

[2] In the case of magnitudes, unlike figures, there is no difficulty in most cases in becoming aware of a sensible appearance distinct from 'real' size.

What happens to the young draughtsman when he learns perspective? James tells us that his training consists in "his learning to feel directly the retinal (*i.e.*, the primitively sensible) magnitudes of objects". If that were so he would never learn to draw at all; for there is no such thing as a feeling of retinal magnitude. His task is in one way very much easier than the task which James would set him,—easier in so far as it is at least not impossible of achievement,—but in another way much more difficult than it is represented to be by the traditional sensationalist psychology. For according to this psychology all the artist has to do is to forget his percepts and attend to his "primitive sensations". There is the picture all ready drawn for him in two dimensions on the retina of his eye,—all he has to do is to copy it on a piece of paper. But, if there is really no more than this in the artist's cunning, it is surprising that mankind took so many thousands of years to hit on the simple device, and that even now in many parts of the world where a fairly high development of the arts exists the laws of perspective are very imperfectly known. It is surely impossible to believe that the trick is as simple as the psychologists would have us believe,—that we need only draw the curtain of meanings to behold the fairest tree of art, whose fruit is excellent and within the reach of all. (It is hard to resist the temptation to misquote Berkeley's short and easy way with the mysteries of science, in this connexion; for its analogy with the psychologist's short cut to the pictorial arts leaps to the eye.) As against this view that the craft of the artist is a kind of ignorance, or withdrawing from reality,—a view which reminds us of Plato's contention that the painter's picture is twice removed from reality,—the suggestion may be put forward (tentatively, as not being based on any knowledge of the history of the arts, but rather as an *a priori* presumption) that every advance in the technique of the draughtsman must have gone hand in hand with, and been based upon, an advance in science. It was no light matter to play tricks with the third dimension, to gather up into one plane and spread upon a superficies the depths of space, and to translate the solid world upon a sheet of paper. For perception is apprehension under a tridimensional schema, and draughtsmanship the finding of

But then the sensible appearance is never identical with the perspective or retinal value. *Vide infra.* If the draughtsman reproduces perspective magnitude with photographic fidelity, then he reproduces on his paper something different from the sensible appearance,—something other than what he sees.

the correlate schema in two dimensions. Nature no doubt translates the former set of relations into the latter, upon the retina of the eye. But it is the former set of relations, the world in three dimensions, that is given to us in perception, —not its projection on the retina. We have no primitive sensibles corresponding to the retinal impressions. And if we would copy Nature's draughtsmanship, we must laboriously learn her formulæ for transmuting the tri-dimensional schema into the very different schema of two dimensions.

The question of the relation of perspective values to sensible appearance brings us face to face with one form of the problem of the relation of appearances to reality in perception; and with one form of the question whether any way can be found of dealing with appearances other than the subjectivist way of putting their existence 'in the mind'. If appearance meant perspective, we could answer the latter question in the affirmative. Reid thoroughly appreciated the objective character of the perspective sizes and shapes of things, and his rejection of the "way of ideas" carried with it the recognition that the varying perspective values of objects do not exist "in" the mind. The visual angles subtended by things at different distances, their visual superposition values with reference to each other at different distances, are as objectively real as their "real" magnitudes and shapes are,—the former have as good a claim to a place in the physical world as the latter have. It is a real relation that lines from the extremities of (say) a stick converging on points at varying distances from the stick will form different angles.[1] And genuine perspective perception is the perception of such objective facts. It is (*e.g.*) the perception of the different angles subtended according to the distance between the stick and point. "Real" perception is the perception of another objective fact, *viz.*, the magnitude-relation of two objects in the same plane, or as considered in the same plane; or their contact value. There is no reason to class the latter fact as objective and the former as subjective If the former is "in the mind" then the latter is also "in the mind". The former, or perspective size, has been regarded as subjective, or 'in the mind' because it varies; whereas 'real' size does not. But, of course, perspective size is

[1] There is therefore nothing to prevent a blind man from understanding perspective. *Cp.* the "*Caecus duo bacilla tenens*" of Descartes, quoted in Berkeley's appendix to the second edition of his *New Theory of Vision*: Fraser's *Berkeley*, vol. i. (1871), p. 109. His sensory language may be 'kinæsthetic,' a language of pushes and strains; but the meaning is conveyed just the same.

invariable in precisely the same sense in which real size is invariable. And the facts perceived constitute as good a reality in the case of perspective, as in the case of 'real,' magnitude.

The confusion between this sort of relativity (which is inherent in the objective reality of the thing) with the other sort of relativity (subjectivity) seems to have come about in the case of perspective because perspective has been (unjustifiably) identified by psychologists with bare sensation of retinal magnitude or directions. The perspective magnitude has been put first of all in the eye; and then in the mind. The artist, James has told us, learns to feel directly the "retinal (*i.e.*, the primitively sensible) magnitudes of objects". You first call the perspective magnitude "retinal": then you call it "primitively sensible". The perspective magnitude is now in your head,—in your mind: a sensation. And so the field of perception comes to be divided into (*a*) real sizes and shapes, outside the mind, (*b*) perspective "distortions," which, as identified with sense-data, are inside the mind.

But the perceptual world cannot long remain in the uncomfortably divided condition to which this in-and-out theory would reduce it; and the "real" magnitudes and shapes of things will effect an entry into the mind along with the sense-data, once the door is opened. For "sensation" is the door by which the world gets into the mind, and unless theory of knowledge succeeds in establishing a no-thoroughfare here, it will never keep the world at its proper distance. It is because we are convinced of this that we would keep primitive sensations of retinal magnitudes out of our analysis of size-perception, if we can do so without misreporting the facts.

We *can* see both 'real' magnitudes and shapes, and perspective magnitudes and shapes. Perspective magnitudes, though they are not normal objects of visual perception, nevertheless are, or can become, objects, just as much as "real" sizes and real shapes. But it is not possible by any effort of psychological analysis or any amount of psychological training to find the perspective distortion in the form of a primitive sense-datum, underlying the perception "in your mind". There is no such sense-datum in your mind, and therefore you will not find it there. But there are perspective relations in the external world, and if you want to find them it is outwards that you must direct your attention, not inwards: into the world, not into the mind.

Simple observation alone will not discover in most cases,

"how things really look,"—as we wrongly express it,—and if we want to realise correct perspective values, we shall have to fall back on an experiment of visual superposition. It sounds paradoxical to say that we do not see the perspective appearances,—that we do not see "how things really look". But it is the simple truth: and the suggestion of paradox is wholly due to the somewhat unfortunate phraseology of the distinction between "appearances" and "realities". It would be better, instead of "appearances" (in this sense) to speak of perspective values or effects. But it is difficult to find any acceptable phrase which would serve as a substitute for "real," as opposed to perspective, size and shape. Berkeley substitutes 'tangible' for 'real'; identifying visible with perspective. But this phraseology could not be adopted without accepting the more objectionable features in his theory of vision. And yet there is an instinct for truth underlying his identification of real with tangible magnitudes and figures. For the criterion of "real" size is contact, so that instead of real size, one might perhaps use the phrase contact-size. But contact-size is not the same as tangible size, though the words are derivatives from the same stem: for "touch" has obviously different senses when we speak of two objects touching one another and when we speak of ourselves as perceiving objects by touch. Berkeley's tangible magnitude strictly interpreted refers to the latter: and this may be as much a 'mere appearance' as visible magnitude may be. We may perceive real (or contact) magnitude through touch, just as we may through sight: but sometimes at any rate what is perceived through touch is a mere appearance, and there is no guarantee that the magnitude as felt will be real.

The identification of sensible appearances with the real perspective values of objects, which seems to be very generally made, has no grounds beyond the assumption (itself false) that retinal impressions have a fixed sensory value. It seems then to follow from this assumption that, as the retinal impression is a true representation of the perspective value of the object, so must the sensible appearance be,—the sensible appearance (or at any rate the primitive sense-datum) being regarded as a fixed function of the retinal impression. But the facts are obvious enough, and they afford conclusive evidence that sensible appearances do not correspond with actual perspective magnitudes.[1]

[1] James clearly recognises that "we end by ascribing no absolute import whatever to the retinal space-feeling which at any moment we may receive. So complete does this overlooking of retinal magnitude become

I look out of my window and see one of the arches of the verandah through it. The perspective breadth of the arch is visually superposed by about half the breadth of the window. A piece of pencil is lying on the table—I judge that, if I lifted it, it would superpose twice upon the arch. I make the experiment and find to my no small surprise that half the pencil covers the whole arch. As for the relation between the window and the pencil, the window looks so much bigger that it seems useless to judge,—however I make an estimate, and judge that five or six pencil-lengths will completely fill the window in visual superposition. On trial I find that about once and one-third the pencil length fills the window.

The amount of error made in unsophisticated guessing of visual superposition-values would be a suitable subject for experimental enquiry. If I can generalise from my own case, there would be a large and constant over-estimation of the visual superposition-value of things further off, with reference to things nearer. But the point I wish to bring out is that the "visible magnitude" of objects is ordinarily neither their perspective (visual superposition) value, nor their "real" (contact) value,—but something in between perspective-magnitude and contact-magnitude. Visual magnitude is in fact a compromise between perspective size and "real" size. It is neither a fixed function of visual angles, nor is it a fixed function of "real" magnitude. It tries to be both, perhaps; but manages to be neither. At any rate it seems clear that in such cases there are not merely two things, *viz.*: (*a*) "real," and (*b*) perspective magnitude; but three things (*a*) real magnitude, (*b*) sensible magnitude, and (*c*) perspective magnitude.

Real magnitude and perspective magnitude are both alike objective or physical facts. Visual magnitude in most cases does not correspond to any objective fact. But on the other hand, visual magnitude is certainly not a pure sensation, or sense-datum. This is where psychology from Locke onwards has so consistently gone astray. Take for instance Berkeley's distinction between "pictures" and "images" as expounded in his *New Theory Vindicated*, of which I shall speak in more detail below. Berkeley assumes without argument that the "picture" is given,—is a sense-datum simply proportional to the "image": and the picture, he insists, is the immediate object of vision. So that visual

that it is next to impossible to compare the visual magnitudes of objects at different distances without making the experiment of superposition. We cannot say beforehand how much of a distant house or tree our finger will cover." This is exactly the fact referred to here. (James, vol. ii., p. 179.)

magnitude proper is simply proportional to the image: and the image is the perspective magnitude.

This, as we have just pointed out, is quite false. Visual magnitude is a resultant of many determinants, of which perspective value (retinal impression) is only one among many. Berkeley of course is aware that things usually present an appearance different from their perspective magnitude: but he denies that this sort of "appearance" is the proper object of vision. It is (he holds) the effect of "suggestion,"—which brings to the mind the "tangible" (or real) magnitude, in place of the visual (or perspective) magnitude. But, in the first place he has not realised how invariably the actual "appearance" (whether you regard it as visual or not) is something different both from perspective magnitude and from real (or contact) magnitude. And, in the second place, he has not made out a case for any such distinction as he assumes to exist between the given visual magnitude and the suggested tangible magnitude. The truth is that the only "visual magnitude" which introspection can discover is never a given, but always a product of "suggestion": and that it does not normally coincide either with the perspective magnitude (of which he regards "visible magnitude" as a fixed function) or with real magnitude (which he calls "tangible" magnitude, but which would more properly be called contact-magnitude).

A very enlightening illustration of the nature of the "sensible appearance" is the apparent magnitudes of the sun and moon. We do not always see the sun and moon the same size. They look much bigger near the horizon than at the zenith: and the moon looks smaller when seen through a telescope,—(although in the latter case the retinal image is many times magnified,—another example of the obvious fact that visible size is not a fixed function of retinal impression). These phenomena provide interesting examples of the traditional treatment of size-perception. The case of the moon's looking smaller when seen through a telescope is usually said to involve a "secondary deception," the effect, so to say, destroying its own cause. The case is analysed thus: (1) the actual retinal image is, and is seen as, larger; (2) as an effect of this, we judge that the moon is near; (3) this judgment of nearness makes us see the thing smaller,—because if the moon is so near as it seems it must really be quite small, or its retinal image would be enormously bigger. It is supposed in fact, that the "sensation" corresponding to the magnified retinal image gives rise to a judgement of nearness; and that this judgment of nearness then destroys

its own cause, the sensation of largeness, and generates in place of it a perception of smallness. The converse case is that of the apparent bigness of the moon when near the horizon, of which the following analysis is often given. The image is dim, being seen through a greater density of atmosphere; and is seen over an intervening space broken up by trees, etc.: both circumstances carry the suggestion of distance. But since its distance thus seems greater than when it is high in the sky, we cannot help judging that it must be bigger than usual, in order to produce the usual retinal image when its distance from us (apparently) has increased. And so we *see* it as bigger. There is a "secondary deception" here too,—for I actually see the moon nearer to me, when close to the horizon,—presumably because (*a*) on account of its apparent distance, (*b*) I judge that it is bigger than usual, and see it bigger, and so (*c*) I *judge* that after all it must be nearer than usual, and *see* it as nearer![1]

There are no limits to the possibilities of such epicycles of explanation: but their necessity may well be doubted. Get away from the presupposition that we have an immediate feeling of retinal magnitude, and the whole complication vanishes,—for the supposed difficulty does not exist when once it is realised that retinal magnitude as such has no sensory value at all,—that we are not even aware of it. I simply do not know that the "image" of the moon is magnified through the telescope. There is no primary deception, and consequently no "secondary deception"; and the percipient subject may plead not guilty to the charge of harbouring this amazing tissue of lies in the soul. His perception of the size of the moon whether seen through the telescope or at the zenith, or on the horizon, is a function of the perceptual universe to which it happens to belong. As correlate of the universe which is seen in the field of the telescope the moon becomes visibly small. Why should it become small? Because the telescope makes space collapse. The moon looks smaller because it is reduced automatically to the scale of a new perceptual schema. The moon projected on a nearer plane is the moon of a smaller world, and so suffers shrinkage to match the world, of which it is a function. Similarly the moon on the horizon looks bigger because the perceptual world is a bigger world horizontally than it is vertically and so needs a bigger moon as its correlate. The over-arching heaven is seen as a very much flattened dome;

[1] But sensible appearance does not necessarily correspond with our judgment. Often it persists when our judgment contradicts it. This point is considered below.

and the changes in the perceived size of sun and moon, as they climb to the zenith and descend again, are proportional to the flattening of the arch. It is to be noted that the apparent magnitudes of the heavenly bodies obey precisely the rule which governs the apparent magnitudes of after-sensations. An after-sensation projected into a distant plane looks bigger, projected into a near plane looks smaller: but this is just how the visible magnitude of the moon behaves. It is because the visible sizes of sun and moon have not been recognised as simple functions of the perceptual schema that psychologists have been forced to invent the hypothesis of "double deception," in an effort to explain their changing appearance.

It may be that this 'telescoping' of space is partly conditioned by a change in the size of the retinal impression. But there is no reason whatever to assume the existence of a direct and primary awareness, or "primitive sensibility," of retinal magnitude. The change in retinal impression, working with other conditions, manifests itself to us, primarily and directly, as a modification of the general perceptual schema, a modification which can be roughly expressed by saying that things have come nearer, or that a section of space has disappeared, or that there is a collapse of planes: so that the magnitude of an object as perceived by us is never a bare feeling of retinal magnitude, but is always the product of 'relative suggestion'.[1]

The supposition of perceptual "schema" as determinant of the percept has forced itself upon psychologists in the attempt to explain a variety of apparently anomalous phenomena of perception. Dr. Myers puts it forward as an explanation of the phenomenon of vision known as auto-kinetic sensation,[2] *i.e.*, apparent lateral displacement of seen objects without eye-movement. He makes the same suggestion with regard to the size-distance percept, in the case of the variable size of the 'after-sensation' according to the distance of fixation-point,[3] pointing out that in this case "the subject does not consciously take into account the distance of the fixation-point". He brings under the same category the exaggeration in the visual magnitude of familiar objects seen through fog, remarking that "both in the case of the after-images, and in the case of objects seen through a

[1] Stout, *Analytic Psychology* (1902), vol. ii., ch. vi., especially pp. 68-72. But Dr. Stout finds the starting point of perception in "sensory impressions which are not themselves distinguished and identified".

[2] *Text-Book of Experimental Psychology*, 1911, Part I., p. 230.

[3] *Op. cit.*, p. 282.

fog, the estimation of distance does not consciously affect that of size. Yet primarily the apparent size must be dependent on some unconscious influence of distance. Possibly we have here a schema or unconscious disposition in regard to the distance of objects. And when this schema undergoes change, it manifests itself in consciousness by effecting a change in apparent size, whereupon the apparent size determines our awareness of the distance of the object." Similarly with regard to the apparent sizes of the sun and moon, after pointing out that the form of the sky is an important factor in the illusion, he states that "it is this apparently greater distance of the sky and of celestial bodies (at the horizon) which, although not actually recognised, yet affects an unconscious schema, and this leads to an apparent enlargement of the heavenly bodies where they rise and set."[1]

The interest of these passages is their rejection of the traditional view of the percept as a working up of given sensory data, and their clear recognition of the fact that the sensible appearance is primarily and directly determined, not by any "feeling" of distance, or "feeling" of retinal magnitude, but by something other than a sense-datum,—something which Dr. Myers calls a schema or unconscious disposition. (It will be noticed that he equates the behaviour of the after-image with that of *luna humilis* and *sublimis*.)

With a view to elucidation of the determinants of sensible magnitude one turns naturally to the classical analysis of the size-distance percept given by Berkeley. It was one of those puzzles of size-distance perception dependent on shift of perceptual schema (Barrow's problem) which provided him with a starting-point for his *New Theory of Vision*. Two of the principles of interpretation which he lays down call for mention; the first because it is true, the second because it is false. The first is that the conditions, or determinants, of size-distance perception work together to produce a joint resultant.[2] The effect produced depends on the totality of determinants. We should add, what Berkeley does not, that any attempt to assign a fixed sensory value to any one determinant, must break down. "It is not faintness anyhow applied that suggests greater magnitude; there being no necessary connexion between these two things. . . . Faintness, as well as all other ideas or perceptions" (we should prefer to say, conditions) "which suggest magnitude or distance, does it in the same way that words suggest the

[1] *Op. cit.*, pp. 293-294.
[2] *New Theory of Vision*, §§ 72 and 73. *Cp.* Stout, *op. cit.*, *loc. cit.*

notions to which they are annexed. Now it is known a word pronounced with certain circumstances, or in a certain context with other words, hath not always the same import and signification that it hath when pronounced in some other circumstances, or different context of words." The other principle to which we refer is that no idea which is not itself perceived can be the means of perceiving another idea. From this principle Berkeley draws the conclusion that the accepted optical explanations of size-distance perception are wrong, for "those lines and angles mentioned in optics are not themselves perceived. Hence the mind does not perceive distance by lines and angles." The principle means that the determinants of size-distance perception must themselves be facts of a sensory or perceptual order. This is not true. The conditions which determine perception need not themselves be sensations or sensible appearances: they may be conditions precedent of any sensible appearance.

The insertion of hypothetical sensations (local signs, retinal extensity sensations, etc.), for the existence of which there is no trace of introspective evidence, to serve as connecting links between (presumably) nervous processes and perception, has been carried by the psychologist to unjustifiable lengths. In the first place, as we have said, there is no introspective evidence for these supposed sensory elements. And in the second place, the supposition of them introduces gratuitous difficulties into the psychological analysis. I am referring in particular to the insistence of psychologists upon a primitive sensation of retinal magnitude,—which, as we have seen, leads to an absurd "double deception" analysis of certain size-distance percepts. We are told that we see the moon at the horizon as distant; and therefore we see it as large; and therefore we see it as near. This amounts to a chain of percepts each determining the next in the series, with an absurd result. Now there is no introspective evidence that we see the moon distant: and, if we did, it would be psychologically impossible at the same time to see it near. The only possible result of such a rivalry of perceptions would be an alternation of the competing percepts, with a moon dancing a very disconcerting to-and-from *coranto* on the horizon. The fact, however, is that we do not see the moon as distant, and it is false to assign the percept of a distant moon as the determinant of our perception of a large and near moon. The determinant of perceived size in this case (as in the case of the projected 'after-sensation'; and as in the case of shrinkage of further objects in near vision when accommodation or convergence is effected for a nearer object) is the perceptual schema.

This means that the determinant of visible magnitude is after all not a percept, but a general shift of standpoint,[1] which, so far from being determined by a percept, is the condition constitutive of all objects as perceived at the moment. The schema is the form of the total experience, and is not capable of analysis into any set of sensational or perceptual elements, just because it is the condition underlying all the perceptual facts.

And here we come to a fundamental divergence in the behaviour of two different classes of apparent magnitudes. The size of the moon is a mere function of the schema, and so is the size of visual after-images. But the size of familiar objects seen through fog obeys a directly contrary rule,—they suffer magnification instead of diminution when illusorily located in a nearer plane. The same thing happens when you look across an unnoticed gap in the ground at figures on the other side. They look surprisingly bigger because a piece of the middle distance has been stolen and space has collapsed upon the observer. In cases like this objects refuse reduction to the scale of a nearer and contracted world, in virtue of what Berkeley calls a 'praenotion'[2] or what James would call the imagined normal sensible size. (But the normal sensible size in this sense is not one fixed sensible appearance —"that which we get when the object is at the distance most propitious for exact visual discrimination of its details".[3] The normal sensible magnitude of an object is those varying sensible magnitudes which experience teaches us that it ought to have in different planes.) Familiar objects at familiar distances carry this prenotion. We tend to see them with their "normal sensible appearance" at each plane of

[1] How far physiological conditions of this shift can be found remains to be seen. See James, vol. ii., pp. 216-217. "The size of the field of view varies enormously in all three dimensions without our being able to assign with any definiteness the process in the visual tract on which the variation depends. . . . In general the maximum feeling of depth or distance seems to take the lead in determining the apparent magnitude of the whole field and the two other dimensions seem to follow. . . . But when we ask ourselves what changes in the eye determine how great this maximum feeling of depth or distance shall be, we find ourselves unable to point to any one of them as being its absolutely regular concomitant." See also p. 213, where he draws attention to the "sensible recession of the maximum distance" which occurs on looking at a landscape with head inverted. Also pp. 269-270, footnote. No doubt physiological conditions exist: but certainly they are nothing like that "image on the retina" of which the sense-datum is popularly supposed to be a kind of literal point-to-point transcription.

[2] Berkeley, *Vindication*, § 59.

[3] James, *Principles*.

projection. When therefore the figure of a man in a fog is illusorily projected into a nearer plane, our 'prenotion' assigns to the figure its normal sensible magnitude in that plane, and we see it big, as we should see it if it actually were as near as that. And yet, in spite of the unconciously determined shift of schema which has thus determined the sensible appearance we are aware that the figure is really further off, and we are surprised to find "how big it looks".[1]

The former class of objects may be called objects with functional visual magnitude, because their sensible appearance is a simple function of the schema without interference from any "prenotions". The latter class may be called objects with normal visual magnitude, because their sensible appearance is determined by a prenotion of their normal appearance at any given plane of projection. The principle obeyed by the one class of objects is diametrically opposed to the principle which governs the other class; for objects with functional visual magnitude (such as after-sensations, and the apparent magnitudes of heavenly bodies) have a visual magnitude inversely proportional to the distance of the plane of projection; while objects with normal visual magnitude have a visual magnitude directly proportional to the distance of the plane of projection.

Berkeley lays stress on *situation* as one of the determinants of the size-distance percept, and I propose now to consider the sections of the *Vindication*[2] which set forth his views on this point. His position is complicated partly by the peculiar meaning he attaches to 'image' here; and partly by the assumption which he makes (in common with most subsequent psychology) of the existence of "pictures" proportional to "images," *i.e.*, sense-data corresponding to, and functions of, perspective projections. Berkeley expounds the "image" and its function by the supposition of "a diaphanous plain erected near the eye, perpendicular to the horizon (*i.e.*, to the horizontal plane) and divided into small equal squares". A line from the eye to the limit of the "horizontal plain" passes through the centre square. Lines from the nearest portions of the horizontal plane pass through the lowest squares. "The eye sees all the parts and objects in the horizontal plain through certain corresponding squares of the perpendicular diaphanous plain. Those that occupy most squares have the greatest visible extension, which is

[1] A case in which "judgment" fails to dispel the illusion. The determinant prenotion is working at a deeper level, and a notion "above the threshold of consciousness" has no power over it.

[2] *New Theory of Vision Vindicated*, §§ 48 to 61.

proportional to the squares. But the tangible (real) magnitudes of objects are not judged proportional thereto. For those that are seen through the upper squares shall be judged vastly bigger than those seen through the lower squares, though occupying the same or a much greater number of those equal squares in the diaphanous plain." (They are not merely judged bigger, but seem bigger. The visual idea is "expanded".) The 'diaphanous plain' is, of course, not the retina, and situation of the "image" does not mean absolute retinal situation. Eye-movement makes no difference to situation in Berkeley's sense; though of course it alters situation on the retina. (Any attempt to apply here a doctrine of fixed 'local signs,' corresponding to retinal situations, as determinants of visual magnitude, would have to take this into account. The difficulty is perhaps not insurmountable. And there is some evidence for the supposition that different situations on the retina have different magnitude-values,—whether primitively or as the result of experience.)

Berkeley points out that the 'images' and the 'diaphanous plain' are altogether of a 'tangible' nature, *i.e.*, facts of the objective or physical order. But he holds that there is a psychical entity—a visual sense-datum, or 'picture' corresponding to these physical or 'tangible' facts. "There are pictures relative to those images; and those pictures have an order among themselves, answering to the situation of the images, in respect of which order they are said to be higher and lower. These pictures are also more or less faint; they, and not the images, being in truth the visible objects. Therefore what hath been said of the images must in strictness be understood of the corresponding pictures, whose faintness, situation, and magnitude being immediately perceived by sight, do all three concur in suggesting the magnitude of tangible objects (real magnitude)."

It seems clear that in this appeal to fixed situations on a plane erected near the eye Berkeley falls into the very procedure which he condemns in contemporary optical explanations of the size-distance percept.[1] For fixed situations in a plane erected outside the eye are not sense-data, any more than are the lines and angles outside the body, by which geometrical optics measures size and distance; and they have therefore no proper place in the sensationalist's psychology of

[1] *New Theory of Vision*, §§ 10 to 13. His principle is that "no idea which is not itself perceived can be to me the means of perceiving any other idea". But the lines and angles of geometrical optics are not themselves perceived.

perception. It may be said that the pictures corresponding to (retinal) images and situations are sense-data. But these 'pictures' are very equivocal entities. A 'picture' may mean one or other of two things (i) sense-datum, the hypothetical psychical entity corresponding to retinal impression; (ii) sensible appearance, the product of 'prenotions' and of the schema. It is really the latter alone that could give us those fixed "situations" to which Berkeley appeals. But of course Berkeley's "picture" cannot be the sensible appearance (*i.e.*, the suggested size-distance, or the "expanded idea") for the "picture" is appealed to as the bare visual datum, the determinant or suggester; and it cannot at the same time be the determined, or suggested, percept. What Berkeley does is to make his picture both these incompatibles at once: and that is why he is able to invest the "pictures" with distinctions described in the question-begging words horizontal and vertical. The sensible appearances of an already tri-dimensional world admit of these distinctions. But sense-data do not. And even if we cut out the reference to the third dimension which these words imply, and confine ourselves to upper and lower situation of the pictures, the fact remains that 'situation' implies an objective order as given. Berkeley's diaphanous plain is already objectified; and it is this objectivity that allows Berkeley to speak of upper and lower situation in his 'pictures'.

The confusion arises because Berkeley is trying to get done on the level of sensory or presentational consciousness, work which is already done for, but not through, sensible appearances; work of which we have presentations only in its resultant, the sensible appearance or percept. The "pictures" to which Berkeley appeals here as determinants, are already determined or schematised: they are no mere raw-material for thought to work up into a world: they are already pictures of a world,—even if it be only of a world in two dimensions.

And, incidentally, there does not seem to be any reason whatever for supposing the existence of a primitive object of vision schematised in two dimensions only. The motive for such a supposition is of course obvious enough,—the sense-datum is thought to be somehow proportional to the retinal image, and the retinal image is of course in two dimensions.[1] *Ergo* the primitive visual datum can only be a representation or picture in two dimensions. Distance is a line turned endwise to the eyes and cannot be represented in two dimensions

[1] Though it is worth noting that the retina is not a plane surface.

on the retina,—*ergo*, it cannot be 'represented' in perception. It seems incredible that theory of knowledge should have been dominated by so crude a conception, but it certainly has been so dominated. And the reason is that psychology accepted the existence of a sense-datum proportional to, or a function of, retinal impression.

A study of the conditions under which judgment, or conscious change of viewpoint, can alter the sensible appearance, is badly needed. The general rule seems to be (and this is the only real justification for regarding sensible appearances as something "given") that the sensible appearance is not normally subject to alteration by a conflicting judgment. The determinants of the sensible appearance must work through the schema, or general form, of the experience. But yet there are numerous cases in which judgment can alter the percept: for example those double-perspective geometrical figures which can be made to assume one or other of two alternative sensible appearances, more or less as the result of a conscious and deliberate change of viewpoint. (I say 'more or less,' because to some extent the appearance changes spontaneously and againat your will,—an unconscious determination defying your conscious attempt to determine the percept.) But this power to determine percepts obviously works within narrow limits only: you cannot see the straight stick thrust half under water as straight, or the moon on the horizon as equal in size to the moon at the zenith, or five miles of middle and far distance as perspectively smaller than a few feet of foreground,—however hard you may try. The sensible appearances have been pre-determined, and consciousness, operating so to speak externally, is powerless to interfere with them.

Berkeley's 'prenotions' stand for meanings constitutive of the sensible appearance. As such, they no longer exist as merely separable meanings (judgments) external to the sensible appearance: they exist as immanent in and constitutive of the sensible appearance. The merely external and separable meaning (*i.e.*, the judgment) may be, and very often is, contradictory of the immanent or constitutive meaning of the sensible appearance. The law of contradiction cannot prevent us from seeing one thing and judging another. Perception or sensible appearance is not judgment-made; though it is meaning-made.

The 'picture' corresponding to the 'horizontal image' of Berkeley is determined by the prenotion (immanent or constitutive meaning) of the foreshortening of lines turned endwise to the eye. If you measure the perspective value of five miles of flat country against your walking-stick held erect it

is but an infinitesimal fraction of your stick that is superposed on the five miles of landscape. But now incline your stick into a more or less horizontal position, endwise to your eyes, and of course the reverse becomes true; the further landscape will be beneath a larger part of the stick's length. And that is how you see the prospect,—you are incapable of seeing the actual perspective value, because your schema of perception carries with it the 'prenotion' of foreshortening as an immanent meaning constitutive of the sensible appearance.

This analysis of the size-distance percept has aimed at bringing out the fact that the sensible appearance is in every respect the reverse of that hypothetical entity the sense-datum,—being, as it is, the fluid product of an elaborately constructive schematism of perception. Starting with the denial of the sense-datum, the analysis ends with the affirmation of the sensible appearance. It remains to emphasise some of the points of difference between the former and the latter.

By drawing a clear distinction between the psychological fact, the sensible appearance, and the psychologist's fiction, the sense-datum, we definitely reject that misleading psychological metaphor which makes of sensations or sense-data the raw material of knowledge, the stuff on which the mind operates. There is no such stuff of knowledge, no such raw material, introspectively discoverable; and, if there were, mind could not operate with such refractory material, for nothing could be done with it beyond that combining and disjoining to which (consistently enough) the older psychology confined the functions of the intellect. Reid observes,[1] "It is a very fine and a just observation of Locke that, as no human art can create a single particle of matter, and the whole extent of our power over the material world consists in compounding, combining, and disjoining the matter made to our hands; so in the world of thought, the materials are all made by nature and can only be variously combined and disjoined by us". But in fact the mind is an artist whose art is not of this base mechanic order. It is formative of its own materials. Dr. Stout[2] has drawn attention to the passage in which Hume admits the ability of the mind to supply a missing shade in a series of shades of a colour, independently of previous experience.[3] Hume remarks that

[1] *Enquiry*, chap. v., § vii., Locke's *Essay*, II., xii., 1.
[2] *Analytic Psychology* (1902), vol. ii., p. 54.
[3] Hume's *Treatise*, I., i, 1.

"the instance is so particular and singular that 'tis scarce worth our observing,"—so blind could a preconception of the mechanical nature of mental operations make an acute observer, to the significance of a phenomenon such as this of 'relative suggestion,' which pervades the whole work of the mind. The outstanding feature of the sensible appearance is its plasticity and fluidity, as contrasted with the stubborn and superficial rigidity of the sense-datum. Its boundary lines are not fixed, and there is always more in it than 'meets the eye'. In view of the infinitely complex cross-currents of meaning which carry and constitute it, the so-called image, however determinate and 'given' it may be at the moment of its appearance in consciousness (and it always *seems* to be a given and determinate thing), nevertheless has more of expression than of impression in it; and its possibilities as expressive of the real nature of things, are not subject to the limitations which the supposed impression (or sense-datum) seems to carry with it. In this connexion I would emphasise the point that the sensible appearance is not *superficial*. The truth is that the superficies (the supposed sense-datum) cannot be separated from the depth of meaning which constitutes and underlies the sensible appearance. The sensible appearance is (so to speak) essentially tri-dimensional. Indeed the perception of the third dimension in space is possible only because the sensible appearance has this 'third dimension' of experience, namely immanent and constitutive meaning. Berkeley's difficulty about the perception of distance, as being a line turned endwise to the fund of the eye, does really arise from his reduction of the sensible appearance to the merely superficial image. And part of the difficulty as regards the apprehension of substance is of a similar order. Crudely put it amounts simply to this, that the image or sense-impression only reveals the outside or surface of the object,—that we can never hope to see inside things. A superficial image which has no depth of immanent meaning might gives us the qualities which form, so to speak, the surface of things, but it can never give us the thing in its substantiality, transparent in three dimensions. Our 'senses' can, no doubt, give us any number of cross-sections of substance; but never substance in its solid integrity. But, in truth, we do "see" distance, and we do "see" things solid: the defect is not in our sense-perception, but in the misleading analysis of sense-perception into sense-data.

Again, the sense-datum is supposed to *precede* a meaning which it subsequently acquires; whereas the sensible appearance is inseparable from and *preconditioned* by the

meaning which it expresses. I can find no reason to believe in the existence of a meaningless impression. It seems to me that, logically and psychologically, meaning is the presupposition and condition precedent of every sensible appearance; sensible appearances being never impressional, but always expressional, in nature. Sensible appearances are the language in which the poetic faculty of mind tries to find, under limitations, an expression, not altogether inadequate, for those meanings which we call physical facts. The sensible appearances are 'unreal' in so far as they are incomplete and inadequate expressions of the meanings. We have not tried to show that the sensible appearance is ever a completely adequate expression of the real (for it never is), but only that it is very much more than an 'image,'—that it has the plasticity which is characteristic of an effort to express a meaning. But if what Berkeley delighted to call the Divine Visual Language is charged with a meaning greater than it can express we need not so far detach and "immobilise" it as to make it appear incapable of conveying any meaning whatever.[1]

There is another aspect of the difference between the sense-datum and the sensible appearance, which may be exemplified in the obvious fact that we can perceive motion: but which, in its fullest implication, means no less a difference than that between a connected experience and a disconnected system of floating 'ideas'. Experience is not connected through 'ideas' and on the surface, but in the depth through meanings,—and to confine it to superficial impressions—sense-data—is necessarily to disintegrate it. Lockian 'ideas' are but the flotsam of a universe wrecked on a false psychology, and out of the flotsam popular psychology labours in vain to reconstruct the continuity of the real world as given in perception. The entirely gratuitous difficulty which is often felt about the perception of motion, in particular, simply arises from the substitution of sense-data for the truly functional thought-element, the sensible appearance. There can be no sense-datum or impression of movement, because

[1] *Cp.* Bergson's dictum "Percevoir signifie immobiliser" (*Matière et Mémoire*, p. 232, Paris: 1913). Bergson's "pure percept" has a suspicious resemblance to the sense-datum. As Höffding points out "Bergson makes too great and too external a difference between the immediate given and the psychical activity. Nothing is given to us, no subject arises, without psychical activity, whether we notice it, or whether we do not" (Höffding, *Modern Philosophers*, English translation, p. 247). But Bergson teaches the better way of regarding perception in such passages as *Matière et Mémoire* (Paris: 1913), p. 232—"Elle s'étale immobile, en surface, mais elle vit et vibre en profondeur".

the sense-datum, like the individual cinematographic film, stands for a moment of rest, and though you may attempt to counterfeit continuity (as the cinematograph does) by filling the interstices of your fragmentary sense-data with an infinity of sub-conscious impressions or *petites perceptions*, you will never succeed in passing from instantaneous immobilities to a moving continuity. But there is no reason why the moving continuity should not find expression in the sensible appearance, though it defies every attempt to reduce it to a series of 'impressions of sense'. The sensible appearance of movement is a sufficiently familiar experience, and one about which, if the psychologist had asked no leading questions, introspection would have told no lies. It is not wonderful that behaviourist psychology should attempt to ignore consciousness, as not having any functional significance in the thought-process, seeing that traditional psychology has confined consciousness to *simulacra*, which by their immobility and detachment are debarred from playing any rôle in the moving drama of experience,—being, like Berkeley's ideas, 'visibly inactive'.

III.—MR. RUSSELL'S THEORY OF THE EXTERNAL WORLD.

By C. A. Strong.

In his recently published *Analysis of Mind* Mr. Russell reiterates the neo-realistic or phenomenalistic theory which he first developed in *Our Knowledge of the External World*, but now in the setting of a sensationalistic psychology and metaphysics. As I am in complete sympathy with such a psychology, and have myself tried to work out a metaphysics which finds the type of the real in sensation, my observations in the following article will be made from a near and friendly point of view. If he will allow me to say so, I admire his psychology immensely; but I have some reserves to make in regard to his theory of knowledge.

I.

Mr. Russell agrees with the neo-realists in holding that matter and mind represent two different ways of arranging a single stuff, 'experience' or 'sensation'—namely, in perspectives of physical objects and in biographies. He differs from them, first, in admitting that those perspectives which are appearances to us human beings are immediately dependent on events inside our bodies, and more or less distorted by the medium of nerves and brain through which they are perceived; whereas other neo-realists hold, I think, that the perspectives are accurate visions of things as they exist outside us. We may be sure that, if Mr. Russell makes this admission, it is because the facts have been too much for him; his natural tendency is to think that the colours we see actually exist, as they seem to, in things outside us.

What are the facts which necessitate this admission? They are, first, the time and space relations of visual appearances—the fact that they show us events as occurring, not at the moment when they do occur, but at the moment when the report of them reaches the body; the fact that they show us objects, not in their true shape and dimensions, but as

they must appear from the point of view of the body, *i.e.*, with a certain amount of perspective distortion. They are, secondly, such exceptional visual phenomena as after-images and *muscae volitantes*, which show that an appearance, due in reality wholly to causes within the body, may yet be seen outside it, just as if it existed there. These facts prove that objects and events outside the body are conditions of what is seen and heard *only indirectly*, and that the one and only immediate condition is the event in the nervous system.

This state of things, of course, gives rise to the *crux* of realistic theories, namely, to explain how a sensation that varies directly only with one physical object, the nervous system, can yet vary with another physical object sufficiently to give knowledge of it. The commonest answer is that it varies with the nervous system only as to its occurrence or non-occurrence, but that as to what it shows us, *i.e.*, the qualities and their spatial arrangement, it varies directly with the object. The trouble with this answer is that it is in conflict with the facts. The sensation does vary with the object, in all those cases where it gives correct knowledge of it, but it does not do so directly; it varies directly only with the brain-process, and with the object *in case* the brain-process varies with it. If the brain-process does not vary with the object —as, for instance, when we have taken a dose of santonin— the sensation will give false knowledge of it, *i.e.*, all visible objects will be tinged with yellow. And, in all cases, we may say, the sensation is better adapted to give knowledge of the brain-process than to give knowledge of the external object.

The other common answer is that you must not pay any attention to physiological facts when you are discussing such deep questions as the nature of knowledge, for, if you do, you get into difficulties with your intuitive theory of knowing and are tempted to believe in things which you cannot logically prove. Mr. Russell deserves credit for recognising the facts and seeking to square his theory with them; though I am not sure that he makes any attempt to explain *why* reality should be tied into so peculiar a knot. Yet a rounded and adequate theory of perception should explain not only how this function is related to the object, but also how it is related to the brain; it should account for both these relations of the mind to matter. Mr. Russell, I think, contents himself with the fact that perception *is* connected with the brain, and lets it go at that.

He agrees with the neo-realists, again, in holding that objects continue to exist when we no longer see or touch

them; indeed, he would of course not be a realist at all if he did not hold this. But other neo-realists, I think, suppose objects when not perceived to be exactly like what they are when perceived, and to retain the very colours and the very spatial arrangement which we perceive them to have. Mr. Russell cannot admit this, since the nature of what we perceive is determined at least in large part by the medium of nerves and brain through which we perceive them; and he therefore maintains that those perspectives which are not given to human beings or animals are very unlike those perspectives which are. They are still perspectives, *nota bene*, but they are very unlike.

We shall perhaps not misrepresent him if we say that, at the points of space which are reached by light from an object, there is something, of the nature of sensation, but as unlike what we see as the physical process occurring there is unlike the process occurring in the brain. Let us, for convenience, describe this something as a 'sub-sensation'. Now, I have a difficulty with the notion that a sub-sensation is a perspective. The formation of a perspective seems to be impossible without a lens, to draw the light-rays coming from each point of an object together into a corresponding point on a retina or plate, thus forming an image. In discussing sub-sensations Mr. Russell has mentioned the plate, but he has not mentioned the lens; yet, without it, *all* the points of the object (*i.e.*, on this surface of it) would send light-rays to *each* point of the plate, and all the light-rays would be confused together, and there would be no image or perspective. Indeed, when we consider that there are light-rays entering that point from all quarters of the heavens, it is evident that, apart from such a process of analysis as the lens permits, what exists there is only a synthesis of effects, and not anything like the stars from which the rays proceeded. I can hardly suppose that Mr. Russell, with his competent knowledge of physics, has overlooked this point, and yet it appears plainly inconsistent with his description of the sub-sensations as perspectives or appearances.

Since, however, the perspectives can by analysis be separated out, let us assume, for argument's sake, that they are there, and that things existing unperceived are still perspectives; and let us come to the central point of the theory, the definition of the physical object as 'a system of perspectives'. A table, on this view, is not a single thing, existing separately from all the perspectives which you might have if you examined it from different points of view, but is simply a name for the sum of these perspectives. They alone are ultimate

constituents of reality. A star, in the same way, is a name for all the perspectives of it, as seen, photographed, or not even photographed, that are disseminated throughout the universe. And I suppose that the nuclear part of an atom is not a bit of matter, but a name for the perspectives that would appear to a physicist who should invent a super-microscope sufficiently powerful to reveal it.

What first strikes one in this theory is the curious reversal of the spatial position of objects which it seems to involve —objects being apparently everywhere except in the place where we see and feel them. Thus, as you approach a table, you get a better and better perspective of it until you are quite near, and then confused perspectives, and after that there is nothing. (If the perspectives were *views* of the table, not constituents of it, it would be quite intelligible that we should get them only from points outside itself.) But we must remember that, on Mr. Russell's theory, space has no existence except as an internal character of the perspectives: the continuous 'public' space, in which common sense supposes all objects to exist, is only a mental construction. So that what I have been saying is not that there is a real place with no perspectives in it, but only that no perspectives exist which are views of the table from that place. It is not the less a paradox that light should have to proceed from a place, in which there is no constituent of the object, as a condition of the arising of a perspective of it, and yet that the place (and, I suppose, the light too, with its velocity) should have no existence apart from this or some other perspective.

But the greatest paradox is that which arises with reference to time. To fix the object at a definite instant, we must take as our example of an object an *event*. There is a game played in England, of which I regret to say I have no personal experience, called cricket, in which the principal event is, I think, the batting of a ball. Let us take this event, happening at 12 o'clock on Thursday, as our example. It breaks up, on Mr. Russell's theory, into a great number of perspectives, partly in (or at least closely connected with) the bodies of the players and spectators, and partly in the air. Now each and every one of these perspectives is 'late,' by the time required for the light-rays to pass from the batsman's bat to the eyes of the spectators or to the points in the air. They therefore all happen after 12 o'clock. The paradox, then, is that a multitude of events, all happening after 12 o'clock, should be the constituents of an event happening at 12 o'clock.

It is no use pointing out that 12 o'clock is the mathematical limit of all the perspectives, to which we are necessarily led when we consider them as a system: that does not make the event at 12 o'clock any the more real. Of course Mr. Russell may escape from the difficulty, with all honours, by holding, as before in the case of space, that time is only an internal characteristic of the perspectives, and that they are not really themselves in time: but I am not sure that he wishes to be as transcendental as this. Doubtless his theory, as thus interpreted, would be an accurate transcript of the phenomenal facts; but solipsism is that. And it would be a a strange realism, surely, that maintained both that the perspectives are not in time, as they appear to be, and that the event at 12 o'clock did not really happen.

We may draw one inference from these paradoxes, and that is that the object, as physical science conceives it, is not correctly defined as the *system* of all the perspectives (even of the 'regular' ones, *i.e.*, those undistorted by the intervening medium), but is rather their mathematical limit. This is evidently true as regards its time; and its shape and size are not those of any of the perspectives, since these are all distorted, but are the shape and size of *that* object which, situated in the place where the object is seen, would produce the perspectives on the retinas and in the minds of observers, according to the laws of perspective. The physical object is the *implicate* of all the perspectives; its relation to them is somewhat like that of a Platonic idea to the particulars which constitute its exemplification. This is why the object is felt to be given, whole and entire, as it were, in each perspective.

This antithesis between the one physical object and the many perspectives exists alike, whether we regard the former as a real existence, or, with Mr. Russell, as only a mental construction. It may still be (so far as we have yet gone) that the only existences and, so to speak, metaphysical supports of the object are the appearances.

In any case, the appearances upon which an object depends for its reality cannot be the visual ones. For, if they were, what would happen to a table when you turned off the electricity and left it in the dark? The absence of light has suppressed not only the perspectives in human minds, but also those inferior perspectives upon which we relied to give continued existence to objects. And yet the table, according to common sense, exists just as truly and just as completely as when the light was on. Are we then to be realists for the sunshine and the electric light, but idealists for the dark?

But, of course, there are still the tactile appearances for us to fall back upon.

These suffice to maintain the table in existence so long as we actually touch it. But what happens if we take our hands away? What becomes of a penny when you put it in your pocket? Are there tactile appearances in immediate contact with it—for it is only there that tactile sensations are produced—and is it to these tactile sub-sensations that it owes its continued existence? Mr. Russell has not worked out his theory in detail for the case of tactile appearances, and I am obliged to proceed by surmise. But, if there are such tactile sub-sensations, then apparently the penny exists by producing tactile sub-sensations in the pocket, and the pocket in its turn by performing the like service for the penny. We have here another instance of that curious reversal of the spatial position of objects which seems to be involved in Mr. Russell's theory.

But, surely, these tactile phenomena in the penny and the pocket are *effects*, and they imply, each on its side, preceding causes in the pocket and in the penny respectively, which may also be of the nature of sub-sensations. Suppose what touches the penny is not the pocket but my hand. And let the penny be warm. Now, physically, any warmth that passes from the penny into my hand and produces sensations there is a gradual process, beginning in the penny and ending in my hand. One of two things, then. Either this process, so long as it remains in the penny, has no real existence, and the penny, when I put it back in my pocket, wholly ceases to be. Or else it pre-exists to my sensations, as their cause, and then, if we adopt Mr. Russell's metaphysical hypothesis, it will consist of sub-sensations.

It will be seen that I have accepted this hypothesis, and simply put the sub-sensations in a different place: not *beside* our own sensations, as something bearing a similar relation to the object, but *beyond* them, as that in which the being of the object consists. Or, to put it differently, I have conceived them, not as *other appearances*, but as *that which appears*.

II.

This, of course, is something that a philosopher who respects himself must not do. Sub-sensations, so conceived, are things in themselves, and things in themselves are unknowable. You cannot go beyond your own sensations, or the world as they present it to you. Moreover, if you did,

you would have *two* kinds of objects on your hands, the objects of experience and these objects of fancy, and you could not possibly explain how these two worlds of objects were joined into one.

The ultimate ground of this judgment is the assumption that sensible appearances are themselves the objects seen and touched, that they are existences, and that there is no accompanying element of belief, referring them to something other than themselves.

I shall try to show (1) that appearances are not existences, but only sensations *in so far as they are used as signs;* (2) that they are always (in cases where they give knowledge) accompanied by belief; (3) that the belief is to the effect that an object exists, having the characters which the appearance shows us. This belief is not a formulated one; it is only expressed in our acting as if the appearance showed us an object. The object is thus not inferred from the appearance, but directly known through it.

Mr. Russell accepts the phenomenalistic principle—as we may call the denial of the legitimacy of transcendence—and his theory is, in the main, the application of it to perception. Does he adhere to it strictly everywhere? The question is pertinent; for a principle which you can disregard when it becomes inconvenient is perhaps only a prejudice.

(1) Mr. Russell admits that we know the existence of other minds. Now other minds, on his view, are groups of sensations lying wholly beyond those that compose our minds. They are thus exactly in the position which I have suggested for the sub-sensations constituting physical objects. Yet he holds that they can be known. It is true that they are known, in his opinion, by inference; that he does not attribute to the inference complete logical rigour; and that he generously helps it out with a dose of irresistible belief. Now I do not understand the status of such belief in a phenomenalistic philosophy. I should argue, either that the belief was unjustified (and Mr. Russell does seem to retain it with a certain apologetic air), or that the philosophy was false.

(2) Mr. Russell's account of memory represents a complete departure from the phenomenalistic principle. If he were to follow here the pattern set by his account of perception, he would say that when we remember an event on a number of later occasions, as we often do, what is present to our minds is a series of images—or 'retrospectives,' as we might call them; that the past event is the temporal limit of these 'retrospectives,' a mere mental construction; and that to

suppose it was anything more, or ever really happened, involves the fallacy of things in themselves. Instead of this, he admits that the past experience or sensation lies wholly beyond the present memory-image, and can yet be known by means of it. What is more, he does not regard the knowledge as inferential, but as direct. But, if a present image can give knowledge of a past sensation, why cannot a present sensation give knowledge of a present or just preceding sub-sensation?

(3) Mr. Russell holds, I think I may say, that physical things are known to exist when they are no longer seen or touched. Is such knowledge really consistent with the phenomenalistic principle? He will again be obliged to eke out his logic with irresistible belief. For how is it possible that perception, which by its nature can only inform us of the existence of objects while we perceive them, should give us the slightest logical ground for inferring their existence when they are not perceived? Their reappearance is no proof; for it might be a re-creation. But if, when we see or touch them, the visual or tactile appearance is accompanied by a belief that something having those characters exists, then it is natural that its existence, which is independent of its appearing, should continue when the appearance ceases. Thus the continued existence of objects follows intelligibly from anti-phenomenalism, but not from phenomenalism.

Mr. Russell believes, as we have seen, that the perspectives which are not appearances to human beings or animals are quite unlike those which are; and I have given a reason for thinking that they are not even perspectives. If so, sub-sensations *behind* the visual appearance could hardly be more unlike it than these sub-sensations *beside* it. And they have the advantage that an act of cognition (cognition as I have above analysed it) is directly brought to bear upon them: so that we have means of knowing their existence. That the substance of things—though still of the nature of sensation—must be somewhat unlike their appearances, is evident from the fact that the visual and tactile appearances are unlike. Now we cannot suppose that objects persist in the two separate forms of perspectives and, so to say, contacts—that the same object consists, when unperceived, of these two different kinds of sub-sensations: on the contrary, there must be but one kind of sub-sensations, and the difference between visual and tactile appearances must be relative to us.

What is even more important, we cannot suppose that there are two different kinds of space existing externally,

one visual and the other tactile, but must assume that the space we see is the same space as that which we touch. We thus reaffirm what is, to my mind, the most vital tenet of common sense—the unity and continuity of space. And the same argument leads us to the unity and continuity of time. I cannot get over my surprise at Mr. Russell's singular contentment with a world that is discontinuous.

Now let us compare the metaphysics I have sketched with his metaphysics, from the point of view of economy of thought. At first sight his system might seem to be the simpler—since he assumes only appearances, while I assume appearances and things that appear. (My appearances, as I have said and shall soon explain at greater length, are only sensations in so far as they are used as signs.) But Mr. Russell assumes for each object an infinite number of perspectives, all of which are actual; and as the world contains (we may say) an infinite number of objects, that makes the total number of actual perspectives infinitely infinite. Whereas, on my theory, the only actual perspectives are those which appear to some man or animal, all the others being merely possible; and, apart from perspectives, what exists is simply the sub-sensations constituting the object. If *entia non sunt multiplicanda praeter necessitatem*, as Mr. Russell insists, it seems to me that my theory has the advantage.

III.

I have now dealt pretty completely with Mr. Russell's theory so far as it concerns the relation between appearances and objects; and I turn to the relation between appearances and sensations. I believe that, as he fails to make a necessary distinction, or at least fails to conceive correctly the distinction, between appearances and the things that appear, so he fails to make a necessary distinction between appearances and the sensations which convey them; and that the whole situation becomes very much clearer when this distinction is properly made.

I say he does not make it; but, in point of fact, he has made it, though not, I think, with all the desirable clearness, in his analysis of memory. After explaining that a memory consists of an image, accompanied by a belief, to the effect that 'this occurred,' he says that of course the 'this' does not refer to the image as a present existence; and adds that the belief confers upon the image something called 'meaning'. Now I do not wish to be over-critical, and urge that

the 'meaning,' being *that which* is believed, is at least logically prior to the belief, and presumably is not conferred on the image by the belief but by some other mental function. Let it suffice that Mr. Russell has here explicitly recognised that cognition, at any rate in the case of memory, involves a category which is distinct from the image as a present mental state, without being on that account identical with the object. And what I shall now try to show is that a similar distinction requires to be made in the case of sensation.

When, for instance, an outer object acts on the body and calls forth a visual sensation, that is not the whole account of what happens: for (at least if the object is to be one distinctly perceived) we turn our attention, *i.e.*, fix our gaze, in the direction of the object, and accommodate the eye-muscles to it in such a way that it is seen as at a certain distance. Sensation and motion, in other words, converge upon the object, and the datum of vision is not simply the sensation, but the sensation as referred to that spot—it is not the sensation as an existence, but the 'meaning' which the sensation conveys. Suppose the thing I look at is a grate-fire: the datum is not the mere quality light, but something luminous situated at a certain distance. And if at the same time I hold out my hands, there are not two data, the heat and the light, but one, a hot and luminous thing, a grate-fire. There are not two spaces given, one that I see, and one in which I hold out my hands, but the one space in which the grate-fire appears at a certain point. In short, the datum is not restricted to one sense, but is the datum of all the senses that are brought to bear upon the object; and it is not in its nature really a sensible thing, but something grasped by means of sense, something understood or 'meant'.

To this it may be objected that what is meant is the object itself. What need of erecting an intermediate category between the sensation which means and the object which is meant? The answer is that we sometimes mean, in this sensible way, objects that do not exist—as in the hallucinations of the insane, or in dreaming—and that a distinction has to be made between these dream objects, which are unreal, and yet present to the mind, and the sensations conveying them, which are real. It follows that, even in normal perception, the appearance presented by the use of a sensation in order to mean an object *is* not the object itself; but is only its presentment to a mind.

But an opposite objection may be made. What we have called *data* of sensation may be admitted, but it may be

denied that there are any sensations, distinct from the data. Mr. Russell, on the whole, means by 'sensations' the data; he speaks of sensations and of appearances interchangeably. But surely you can, after looking at a grate-fire, turn your attention to the mere sensation of light, a thing that is a state of yourself in the same way that a pain is; or to the mere sensation of heat, which a moment ago was felt to be the heat of the fire. You can use these feelings as media of cognition, or you can consider them in themselves, and in the latter case what you consider is not a mere detached quality of the fire, for it is now recognised to be a state of yourself. In my opinion, such states constitute the ego, or at least the particular part of it that perceives. Such a state was what enabled the ego to remember. Either sensations, distinct from the appearances, must be admitted in perception, or else no present mental image can exist in memory.

Mr. Russell no longer believes in an 'act,' by which the appearance is apprehended; this is perhaps the most important change in his views announced in this book. If by 'act' he means a diaphanous awareness contemplating the appearance, or the deed of a punctiform ego that has the awareness, the change is to be applauded; for neither of these things is really observable. But things having the same functional relations reappear on the sensationalistic theory. For, if we admit that the object was perceived by the use of the sensation as a sign, then the sensation, being a state of the self, occupies the position of ego, and its use as a sign is the act of awareness. Mr. Russell holds that sensations, considered in themselves, are not cognitive. Quite so: they are cognitive only so far as they are used as signs.

The great defect of most thinking on the subject of perception is that, at the very outset, the sensations (*e.g.*, of light and heat, in the case of the grate-fire) are substituted for the true datum, the appearance—the object of introspection for the appearance in perception. Or, say, the two are confused and treated as one, and statements are made of the fused product which really apply, now to the appearance, now to the sensation. It is as if, in the case of memory, the image were treated as of course that which is present to the mind, as the primary datum, out of which by some subsequent process a memory is evolved. Whereas in truth we do not think of the image at all, but what is before our minds is the vision of the past. It is only by turning our attention away from this vision to the present state of the self which it involves that we become aware of the image.

I will illustrate this distinction by one more example. The

perspectives which play so large a part in Mr. Russell's theory are, I think, in his conception tridimensional; and there can be no question that the *datum* of vision includes three dimensions. But, when we look into the matter, we find that depth is not given in quite the same manner that length and breadth are—it is not strictly visual, it cannot be found in the visual field as a colour can, but is a feature of the datum brought before us by means of sensations in the muscles of accommodation and convergence. Thus all that is strictly visual is a coloured field in two dimensions. Mr. Russell is not right, then, when he speaks of the perspectives as sensations; they are appearances, and the sensations are the visual and muscular feelings that enable us to see them.

Nothing therefore could be further from the truth than the view that our visual sensations are a part of the object. They are in their nature impressions on us, produced by its action on our bodies, and when used as signs they enable us to see the object, but they are not even then a part of it. They are only visions of it, and as unsubstantial as visions proverbially are.

It will now be intelligible how I could maintain that appearances are not existences. The only existences are, in perception, the sub-sensations constituting the object and the sensations that enable us to perceive it; in memory, the sensation remembered and the image by means of which we remember it. The world consists entirely of sensations and sub-sensations (the former being, of course, a development out of the latter) arranged in space and time.

This distinction permits us to bring order into the perplexed question of causal relations in cognition. It is felt that the object cannot be the cause of the appearance; because the appearance is the revelation of the object, and thus bears an entirely different relation to it. And yet it is undeniable that perception is called forth by the action of the object on the body. Indeed, the eye is an organ specially evolved to produce a sensation, the parts of which have the same spatial arrangement as the parts of the object. Everything becomes clear if we consider that what the object calls forth is only the sensation, and that the appearance is due to the 'intentional' use of the sensation as a sign of the object. In the same way, a past sensation leaves behind an image, the relation between the two being causal, but the vision of the past is not the image itself but its intentional use for the past sensation.

The terms I have thus far used, 'appearance' and 'meaning,' are extrinsic designations, marking the thing referred to by

the fact that it appears to some one, or that some one means or thinks of it; but, considered in itself, this thing is an 'essence'—that is, an entity having the kind of being that anything must have in order that you may think of it. An essence is thus the entire concrete nature of a thing, in abstraction from its existence. It is easy to show that, if there is to be knowledge at all, it must be by means of essences.

I assume that the world is continuous in space and in time, that its parts are separately existent, and that it has no greater unity than this continuity. Now an animal that knows is confined in his existence to a certain place and a certain time. How then is he to know things in other places and at other times, whose existence is separate from his own—things, indeed, separated from him by the entire intervening distance or lapse of time, or both? One hypothesis is that his existence goes out to them, by a mysterious act of intuition. But this is contradicted by the fact that cognition rests on causality. Another hypothesis is that their existence obligingly comes to him—as in M. Bergson's theory that the past still exists in the present, or in Mr. Russell's theory that my visual sensations are an actual part of the star I see. In reality these views contradict the nature of space and time—since the past is what no longer exists, and yet M. Bergson says that it still exists; since the star is at a great distance from me, and yet Mr. Russell says that it is a part of me.

The utmost that cognition can do is to show me an essence, which is the essence of the object, and to lead me to act as if that essence were real, at the place or time indicated by my action.

I will not elaborate this theory, for it seems to me to follow so necessarily from what has gone before that the demonstration is now complete.

To sum up, Mr. Russell has given us a theory of the external world based on the phenomenalistic principle, and has worked it out with the greatest ingenuity. With that keen logical zest which characterises him, he has shown that a complete science of physics can be constructed simply upon the basis of appearances, without the assumption of anything that appears. But this achievement has the same value as that of a psychologist who should show that a complete science of the human mind can be constructed simply upon the basis of observations of human behaviour, without the assumption of any thoughts or feelings behind that

behaviour. Such a psychologist might believe himself to be proceeding according to the only truly scientific method, and he might draw his conclusions with exemplary logical rigour; but his conception of the object of his science would be a mistaken one, because pure phenomenalism as applied to the human body is false. I would ask Mr. Russell, and those who are tempted to agree with him, to consider whether phenomenalism as applied to other objects than the human body is not also false.

IV.—VISUAL IMAGES, WORDS AND DREAMS.

By Joshua C. Gregory.

Homer compared the swift flight of Hera to the dart of thought in a travelled man who, touched by some incident to rapid recollection, swiftly inspects, in memory, scenes from his past life "and considers in his wise heart, 'would that I were here or there'".[1] Such pictures of the past, either recollected as occurrences or imaginatively surveyed without reminiscence, are familiar experiences. Visual mental images which reproduce past experiences as they were SEEN may flash upon the mind in panoramic spread, as they flashed upon Homer's travelled man, or they may be casual, and perhaps vaguely incomplete, mental pictures. Bertrand Russell probably thought of this milder visualisation as he wrote: "When you hear New York spoken of, some image probably comes into your mind, either of the place itself (if you have been there), or of some picture of it (if you have not)".[2] Homer's comparison of Hera's swiftness to the rapidity of panoramic recollection declares his familiarity with the visual mental images of memory and imagination. He would have stared at Watson's proposal to "throw out imagery altogether" from psychology and have assented to Bertrand Russell's comment: "If you try to persuade any uneducated person that she cannot call up a visual picture of a friend sitting in a chair, but can only use words describing what such an occurrence would be like, she will conclude that you are mad".[3] Homer's surprise is significant; for Watson is probably eager to jettison visual images because he is not favoured with them. It is significant because visual memory and imagination seem to vary in degree and extent from those for whom recollection is essentially a visualised panorama to those for whom it is quite devoid of visual images. "Visual image," or "mental picture," need only be used descriptively in the present connexion to describe an experience which is familiar to most, though not to all. Homer's reminiscent travelled man, Alexander believes, interviewed the actual scenes which he

[1] *Il.* 15, 82. (Trans. Lang, Leaf and Myers.)
[2] *The Analysis of Mind*, p. 80.
[3] *Loc cit.*, p. 153.

had formerly interviewed in perception, though he interviewed them under the circumstances known as remembering: images are not pictures in the mind as we naturally, and no doubt in ordinary life very conveniently, think, but things themselves interviewed under the particular circumstances known as memory, expectation or imagination.[1] Occasional individuals are never tempted by their experiences to speak of "visual images" because they never experience any, but most people, probably in this respect resembling Homer more than Watson, when they think, for example, of their summer bathing, can see, in their mind's eye, the tent from which they bathed. This reminiscent visualisation of the past, however achieved and whatever be its real nature, can be described as mental visual imagery without prejudice to the ultimate status ascribed by Alexander to the image and, in the present connexion, considered as mental imagery which mimics the visual aspects of seen things, as a reflexion in the water mimics a tree by the brink of a pool.

To those who experience them visual images are as familiar in imagination without any tinge of reminiscence as they are in recollection. Titchener mingles "visual hints" into his thinking: when he thinks of "modesty" he sees a graceful, bending female figure and when he thinks of "the progress of science" he sees the inflowing tide.[2] This is intelligible to people who mingle visual images much less freely into their thinking than he, and they, in company with others who visualise more freely even than Titchener, understand Socrates' remark to Simmias that lovers, when they recognise a lyre, "form in the mind's eye an image of the youth to whom the lyre belongs,"[3] and Hamlet's reply "In my mind's eye, Horatio".[4] There are experiences in which the mind seems to have an eye and things happen as if visual images were in this eye, as the reflected images of physical things are in the physical eye. Behaviouristic disclaimers and visualistic deprivations cannot negate the common experience in which things happen as if mental images mimic the visual aspects of seen things when these things are out of perceptive range. Nor can they successfully deny that the dreamer thinks absent things are present as if there were visual images in his mind which he mistakes for outward objects—as he might mistake a mirage in the desert for a real oasis. Such visual images, descriptively

[1] *Space, Time and Deity*, i., 25; ii., 218.
[2] *Lectures on the Experimental Psychology of the Thought Processes*, ch. i.
[3] *Phaedo* (Jowett's Trans.). [4] *Hamlet*, I., ii., 186.

described as such to avoid conflict with realistic interpretations of their real status, seem to have an interesting connexion with dreaming which the present article proposes to discuss.

Visual images can inflict damage on the mind and its thinking. Association can play scurvy tricks even on grave philosophers: "The celebrated Descartes was very much in love with a lady who squinted; he had so associated that passion with obliquity of vision, that he declared to the latest hour of his life he could never see a lady with a cast in her eyes, without experiencing the most lively emotions".[1] Descartes suffered periodically from an insistent emotion; Rasselas, during his broodings, suffered from insistent images. "One day, as he was sitting on a bank, he feigned to himself an orphan virgin robbed of her little portion by a treacherous lover, and crying after him for restitution. So strongly was the image impressed upon his mind that he started up in the maid's defence and ran forward to seize the plunderer with all the eagerness of a real pursuit."[2] Great writers freely depict their characters under siege by insistent images. When Crusoe had left his island and been ill, his "imagination worked up to such a height" that he SAW the "old Spaniard, Friday's father, and the reprobate sailors," "looked at them steadily . . . as at persons just before" him and often frightened himself with "the images" of his fancy. Don Quixote's mind became "a world of disorderly notions" and a chaos of turbulent images made him insane. Nothing is proved by making events happen in a story; but these fictions are felt to be essentially unfictitious because imagination can, and does, do violence to the mind.

Darwin cites the hallucination of a gentleman who, after looking attentively at a small statue of the Virgin, raised his head and saw the same appearance at the end of the room.[3] This milder type of siege does not menace sanity as the fiercer sieges, like those of Crusoe and Don Quixote, menace it, but the insistent image always tends to damage thought by detaining attention upon itself. Titchener wrote of the "visual hints" which mingle in his thinking, and images more properly subserve thought by unobtrusiveness than by insistence. "Any such narrative will present to me some image," writes Max Beerbohm, "and stir me to not altogether fatuous thought."[4] He perceives the essential function of

[1] Sydney Smith, *Elementary Sketches of Moral Philosophy*, p. 297.
[2] *Rasselas*, ch. iv. [3] Taine, *de L'Intelligence*, ii., ch. i.
[4] "And Even Now: Servants."

the visual image in thinking. Turbulent, crowding images stir the mind too violently and shake it rather than guide it. Images which are simply too insistent do not stir it enough —do not pass on the mind freely enough because they invite its attention to cling to themselves.

Great visualising power can confer benefit. Calculating prodigies have said that they saw their figures clearly before them as though they were written on a slate.[1] In calculating or blindfold chess-playing it is an obvious advantage to have a mental slate or chess-board. The intensification of his images secured for him by his emotion must assist the painter to represent those pictorial aspects of things which arouse that emotion within him.[2] Hogarth aimed at the nurture of visualisation: "I had one material advantage over my competitors, *viz.*, the early habit I thus acquired of retaining in my mind's eye, without coldly copying it on the spot, whatever I intended to imitate".[3] Sir Joshua Reynolds pointed the painter to the value of the mental image: "Whenever a story is related, every man forms a picture in his mind of the action and expression of the persons employed. The power of representing this mental picture on canvas is what we call invention in a painter."[4] A descent from art to stage clairvoyancy or telepathy lights upon another helpfulness in vivid visualising power. Robert Houdin chose an object at random from one of the audience, and his blindfolded son, at a conventional sign from his father, simulated second sight and described the object. The Houdins had, apparently, in their conventional signs a code of cues; but their performance depended essentially on young Houdin's training in visualisation. His father taught him to take "mental photographs" of the people in the audience and of the objects on their persons. Mental photographs plus judicious cueing thus provided an ingenious simulation of telepathy.[5] Whenever, to sum up shortly, it is an advantage to see objects without looking at them it is an advantage to have vigorous and abundant visual images.

But the "stir" referred to by Max Beerbohm contemplates an activity of thought distinct from mere picturing of objects. Titchener's imagery is relatively scattered and is largely a disintegrated remnant of complete mental pictures. This scattering and disintegration is still more marked in many minds, and visualisation is obviously reduced to a provision of

[1] Taine, *de L'Intelligence*, ii., ch. i.
[2] Holmes, *Notes on the Science of Picture-Making*, pp. 15-16.
[3] Austin Dobson, *William Hogarth*, p. 15. [4] Fourth Discourse.
[5] Bergson, *Mind-Energy* (Carr's Trans.), pp. 156-157.

cues for thinking. The visual image proper can be completely replaced by the mental picture of a word which is a mere symbol of the object with no resemblance to it. Words are heard as well as seen and also experienced as articulatory movements but visual aspects alone are under discussion here. Since seen or visualised words can serve thought and "stir" it, efficiently replacing sight or mental mimicry of sight, visual images have obviously the important function of inciting or promoting thought. If visualisation is too vigorous, if mental images insistently claim attention, thought suffers a paralysis which may be compared to the too hard stare at an object which permits no real play to thought.

The human mind has shown a marked tendency to abandon the advantage of seeing things without looking at them, conferred by the power of vigorous visualisation, for the advantage of thinking about them conferred by feebler mental images which direct the mind to thought rather than to themselves. When Roger Fry says of the Bushmen that they seem to have retained the palæolithic "unique power of visual transcription" and of the lowest savages that they show "this peculiar power of visualisation" he expresses a very common belief in the superiority of uncivilised over civilised men in visualising power.[1] W. H. Hudson speaks of a revelation "in swift flickering glimpses" of "a vanished experience or state of the primitive mind—a mind undimmed by speculation, in which the extraneous world is vividly reflected".[2] Fry deduces from relics of primitive art, and Hudson, since he compares the animal mind to the visualistic mind of primitive man, is evidently speculative; but direct observation seems to support this combination of deduction and speculation. Rivers says of an old woman giving evidence at a court on Murray Island that "she looked first in one direction and then in another with a keenness and directness which showed beyond doubt that every detail of the occurrences she was describing was being enacted before her eyes". The demeanour of uncivilised men when describing events they have seen, he adds, suggests that they read off memory pictures and their "exclusive interest in the concrete," their developed powers of observation, and their "fullness of memory of the more concrete events of their lives" intimate that "imagery is especially vivid and necessary among primitive peoples. . . ."[3] Carveth Read echoes a general anthropological estimate when he writes: "The

[1] *Vision and Design: The Art of the Bushmen.*
[2] *The Book of a Naturalist*, p. 19.
[3] *Dreams and Primitive Culture*, p. 11.

process of imagination itself, the memory and the picture-thinking of savages, seems to be more vivid, sensuous, stable, more like perception than our own normally is".[1]

The depletion of visual imagery which accompanies the evolution of the civilised mind seems also to occur in the development of the individual. Young children of five or six, according to Kimmins, have a marked VISUAL appreciation of the stories which are read to them. This visual appreciation prevents them from relishing many well-known comic stories and at seven years there is a transition from visual appreciation to an elementary play upon words.[2] This conclusion has a weight of statistical enquiry behind it though it may seem to some to be a somewhat speculative interpretation. A "correspondent" considers it difficult to discover the nature of the images in a child's mind but thinks that children use more mental pictures for thinking than adults.[3] This opinion, doubtless based on many observations of many children, is supported by the personal experience of Dr. Rivers. His mental imagery was more definite in youth, and his topographical memory of the houses he lived in is most definite for the house he left at five years old.[4] The obvious is often untrue and may deceive the observer about his own mind. Familiarity and power to image are closely connected: the most familiar scenes are, normally, most readily depicted in the mind. Memories of childhood which occur often and continuously in reminiscence can be seen vividly because they are familiar and we may mistake our present power of visualising childhood for childhood's power to visualise. But when Rivers discovers an almost complete absence of definite visual imagery in his present waking life and is aware of more definite mental imagery when he recollects his youth it becomes probable that his mental picturing has diminished with age.

Rivers' experience adds another instance to Galton's well-known conclusion that visual images desert the scientific mind. The feeble visualisation attributed by Galton to men of science after statistical enquiry, which is frequently confirmed by direct testimony, as by Rivers, or by indirect testimony, as by Watson's proposal to "throw out imagery altogether," confirms the conclusion drawn from the devisualising tendency in the evolution of civilised thought and in the development of individual minds that the human mind

[1] *The Origin of Man and of his Superstitions*, p. 88.
[2] *Child Study Soc.*, 13th October, 1921: *The Springs of Laughter.*
[3] *Times' Educ. Supp.*, 15th Jan., 1920: *What is Imagination?*
[4] *Instinct and the Unconscious*, pp. 11-12.

tends to dispense with visual images. Titcheners mingle "visual hints" into their thinking and Kekulés, pondering atomic theories on London buses, see atoms dancing in mid-air[1] to destroy the perfection of Galton's generalisations. But Bertrand Russell rightly sees "no reason to doubt his conclusion that the habit of abstract pursuits makes learned men much inferior to the average in power of visualising. . . ."[2] Thinking may become less occupied with the visual image because it becomes more preoccupied with words, as seems probable and as Bertrand Russell suggests,[3] or it may shun them because, as Lord Haldane thinks, "the metaphors that arise out of the images we call up, even in the strictest thought, are a special source of danger in scientific and philosophic investigation".[4] Images may be reserved for art because they are there essential, and dismissed from scientific description because there "the power of imagination has to be kept in restraint".[5] Depressed visualisation may be good or bad, desirable or deplorable, submitted to or struggled against; it has happened in mental evolution and it happens in us. Since it is a fact of experience its mechanism can be studied and that study is a duty for psychology.

Some experiences simultaneously remind us of the depression of visual images and hint at the method of depression. The "correspondent" who discussed children's images had a friend who claimed a recovery of visualisation by reading slowly, with frequent pauses to give the mental pictures time to emerge. The writer's experience confirms this possibility. When he thinks of a word, the word "horse" for example, or hears it, a visual image of the word itself and of the word only rises in his mind. It usually flits through consciousness, as part of a sentence, bringing significance with it, as a waiter brings a plate and leaves. If he detains the word under attention, pausing to observe it, images of horses and of fields or carts or stables or of other items connected with horses, appear in consciousness. These images are usually excluded in the customary conscious flit of thinking but are available. Restriction of imagery thus appears as a customary waiving of a right, or power, which can still be exercised on occasion.

The visual image probably developed through different stages of completeness[6] before man received it in his inheritance from the animal. Visualisation is not usually described

[1] Knowlson, *Originality*, Sect. 2, ch. ii.
[2] *The Analysis of Mind*, p. 154.
[3] *Ibid.* [4] *The Reign of Relativity*, p. 220. *Ibid.*
[6] *Vide* Washburn, *The Animal Mind.*

as an instinct but, like the instincts, it is a strongly marked pervasive tendency which has been received from the animals and incorporated into the general habit of the organism. Like the instincts also it has been placed under control, and like the instincts it has its moments of assertion and its periods of calm. Images may invade the mind as the impulse to flight may invade it when fear arises; and they may, apparently, be as completely, or nearly as completely, banished from thought as flight or other impulses may be banished from action. If images or mental pictures of words be distinguished from other visual images and not included, as seems to be a very usual custom, in the term "visual image," the tendency to visualise is often very completely inhibited. Visualisation can be regarded as a tendency to mental response by visual images which undergoes, progressively with the evolution of civilisation and in different degrees among the minds of one generation, a process of inhibition. The mind has a tendency to have visual images when it thinks, and an inhibiting mechanism to free thought from them. The inhibiting mechanism might operate in one of two ways. The imaging power or tendency might be assimilated into the thinking process: the word "fairy," for example, instead of stirring pictures of these dainty beings in consciousness might stir in it a general sense of significance—the mind realising the MEANING of the word without illustrating it by visual images. Such assimilation might be compared with nutrition by food: the imaging process might lose its identity in the total process of thought as the food loses its identity in the metabolic process.

Such inhibition, if the term "inhibition" is admitted to apply to such assimilation, is a virtual destruction of the visualising tendency since this is transformed into something else. A simple loss of visualising power, which would make "inhibition" unnecessary, would have exactly the same apparent effect of clearing images out of consciousness. It is, however, conceivable that "inhibition" might fail at times to assimilate the visualising tendency, so that images get into consciousness. The virtual destruction of the visualising process by inhibition is thus distinct from its actual destruction, since the original tendency to imagery may, from time to time, assert itself. If some people have practically no visual images[1] their visualising tendencies may either be destroyed or be a lingering remnant which has escaped destruction. The showering of images upon the mind by

[1] James, *Principles of Psychology: Imagination.*

shock favours inhibition of visualisation more than its destruction. De Quincey was told by a near relative who fell into a river and was just saved that "she saw in a moment her whole life, clothed in its forgotten incidents, arrayed before her as in a mirror".[1] Some Gold Coast natives who had been almost drowned told Cardinall that they had seen the dwelling-places of water-spirits.[2] They had doubtless had visions appropriate to their minds, as De Quincey's relative had visions appropriate to her mind, which had been showered upon them by shock. If, as seems probable, an apparently completely devisualised mind would visualise under shock, devisualisation probably occurs through inhibition, more or less stringently enforced.

Since the inhibition seems often and in many respects to be but lightly enforced (images appearing, for example, when the reader pauses over his words) visualisation may be normally inhibited merely by keeping images out of consciousness. This is the second possible operation of the inhibiting mechanism and, in a general way, it corresponds to the "suppression" of instincts suggested by Rivers, as assimilatory inhibition corresponds to his notion of "fusion".[3] Devisualisation may proceed inhibitorily by a tendency to make visual images inaccessible to consciousness. The same process may also be expressed as an inhibition of the mental tendency to react in thinking by producing images. To secure clearness of exposition the images may be conceived to sojourn in the unconscious ready to enter consciousness and devisualisation to be an inhibition of their entry. There are, on this conception, images in the unconscious mind, such as mental pictures of horses and scenes connected with them, ready to enter consciousness when, for instance, the word "horse" is seen or heard, and a process of inhibition to prevent their access. This inhibition has increased in stringency during the evolution of the human mind, it becomes more stringent during individual development, usually very much more stringent if the individual inclines to scientific or abstract pursuits, and varies in stringency among the members of any group—artists, for example, inclining to release their images as philosophers incline to imprison them.

Rivers remarks that painful experience is specially liable to "suppression".[4] By such "suppression" any experience

[1] *Confessions of an English Opium-Eater*, Pt. 3.
[2] *The Natives of the Northern Territory of the Gold Coast*, p. 34.
[3] *Instinct and the Unconscious*, p. 33.
[4] *Loc. cit.*, p. 35.

is rendered inaccessible to consciousness, but special conditions, such as dream or hypnotism, may restore it from the unconscious where it has remained active. An officer who often experienced fear when he was enclosed had this claustrophobia greatly intensified at the fighting front. A painful experience in an enclosed space had been driven down into his unconscious to trouble his conscious life when his outward surroundings resembled those of the suppressed experience. In a semi-waking state following a dream he recalled the incident which had remained in suppression to disturb his life. At the age of four he had been in the blind end of a passage and a dog had followed him in from the open end. His fear of the animal and his inability to escape had sunk into his mind beyond the range of recollection and the suppressed experience remained as a perpetual suggestion of menace whenever he entered an enclosed space.[1] De-visualisation probably is a quieter form of suppression or inhibition, which restricts the access of images to consciousness. The need for this restriction appears in some instances where vigorous visualisation would seem to be an advantage. Taine discovered purely visual memories in chess-players; Binet found that his blindfolded chess-players were disturbed by mental visions of their pieces. Binet's subjects reconstructed the game at every move and each one proceeded from an "idea of the whole" which enabled him, if he so desired, "to visualise the elements".[2] If visualisation can disturb a blindfolded chess-player who would apparently benefit by a special power to see without looking, its historical and individual inhibition, to favour conception by restricting mental seeing, appears clearly as an important factor in mental evolution. Thought requires its visual images under discipline—to be prevented from occupying consciousness too forcibly or freely and to be available when wanted. Perfect imposition of perfectly regulated inhibition may be seldom or never secured. Any particular mind may inhibit too severely or too leniently. The varying visualising power, so obvious in the different mental methods of individuals, represents different operations of the inhibitory tendency which provides a necessary mental discipline for images. These different operations depend, doubtless, on the original mental equipment of the individual and also on his surroundings and life. They are usually spontaneous and unwitting, though educationalists contemplate the rational superintend-

[1] *Instinct and the Unconscious*, pp. 10 ff.
[2] Bergson, *Mind-Energy* (Carr s Trans.), pp. 161-162.

ence of the visualising faculty. There are, doubtless, all degrees of visualistic inhibition—it is almost absent in a mind like Blake's and almost complete in a mind like Watson's. It passes also, doubtless, in different degrees in different minds, into what Rivers calls "fusion".[1] The significance of any idea, such as the idea of a horse, may centre on the word "horse" and be supported by visual images which lurk underneath it without entering consciousness. These lurking images may, escaping inhibition or relieved from it, become conscious and visualistically enforce the meaning or significance of the idea which centred on the word. These entrant images, or any one of them, may substitute an imaged focus for the original verbal focus. This is inhibition in its suppressive and releasing aspects. Visual experiences of matters connected with horses may cease to be recoverable as images and still contribute to significance by incorporation in the mental process stirred by the word. This is Rivers' "fusion". There may be, also, a complete deletion of the effects of some experiences upon the mind, corresponding to the complete obliviscence suffered by memory. The mind may retain no traces of some experiences, though it may be that no experience does not leave some permanent result. There may be a slight deflexion, though it may be virtually irrelevant, to mark the former touch of any experience, however fleeting and imperceptible it may appear to be.

It has been implied that words are the inhibiting agents in devisualisation and they seem to have this rôle. Since they are themselves visual images which appear in thinking (only the visual aspect of imaging is under discussion here) they intimate a retention of visualisation which has dispensed with visual mimicry. It is usual to distinguish between visual images and words, even when the latter are visualised, because words are visual signs or hints that have no resemblance to objects and contain no element of imitation. These visual signs inhibit mimicing visualisation and "Almost all highly intellectual activity is a matter of words, to the nearly total exclusion of anything else". This substitution of the word for the representative visual image occurs, adds Bertrand Russell, because words are more easily produced, because images may contain irrelevant detail, and because abstract matters are not easily rendered by imagery. Destruction of imagery would follow these advantages by throwing the mind entirely on the resource of words. It is, however

[1] *Instinct and the Unconscious*, p. 32.

a necessary safeguard in thinking, Russell adds, "to be able, once in a way, to discard words for a moment and contemplate facts more directly through images".[1] This process of contemplating facts more directly through images and, it may be added, of using them as vehicles of artistic insight, would, if lost, deplete the mind and might, in the final result, even destroy its capacity for abstract thought. A regulated inhibition of visual images, which prevents their intrusion and allows them access when desirable, provides thought with a mental method. This inhibition is normal to the human mind, though the perfection of its regulation varies in degree and may never reach the ideal.

Verbal regulatory inhibition of visual imagery is a compromise between thinking in words and thinking in pictures. It is, normally, a fairly effective co-operative combination, though either partner, verbalising or picturing, may secure mastership in the co-partnery. The verbal inhibition of visual imagery is very discernible in the literalisation or stripping of metaphorical words. Words which begin their public career as metaphors lose their metaphorical significance and signify their meaning with literal directness. When we say of any person that he is "in a hole" or in "a tight place" we think of him as "in difficulties" without having mental pictures of the struggles in an actual hole or of the squeezings between narrow walls which originally conferred a metaphorical status upon the two phrases. The metaphorical images are often there, pinned under the phrase, so to speak, and ready for conscious adoption. Now the dream discards the inhibiting words and summons the images. Dreams are eminently visualising achievements and Freud notes that they transform verbal connexions into connexions between images. Picture writing has serious difficulties with the logical relations expressed by "if" or other similar words and the picture writing of the dream appears more chaotic than waking thought because it is deprived of verbal aids to conceiving these connexions. Causation may occur in the dream as SUCCESSION: this, it may be noted, gains dramatically but loses conceptually—the word "cause" MEANS more than a mere succession, however graphic it may be. Freud adds that words play a part in the formation of dreams and he speaks of them as junction points for many conceptions and as having a predestined ambiguity.[2] The restoration of their original picturesque meaning to words

[1] *The Analysis of Mind*, p. 212.
[2] *The Interpretation of Dreams* (Brill's Trans.), ch. vi.

which are now abstract is specially significant in relation to verbal inhibition of images. Freud chooses as instances of demetaphorised phrases "in a hole" and "in a tight place," and Nicoll[1] records a dream that releases the images from their inhibitory under-pinning by them. A young man was unwilling to accept an offered post and faced with the alternatives of unacceptable work or unemployment. In his waking thought he was in "a tight place". He dreamed he was in a cave which connected with the sea by a long narrow passage. He struggled through it and found himself battling in the surf. The dream ended on further incidents but the original imprisonment and struggle through the sea-washed passage corresponds to the release from inhibition by the verbal phrase of images which have an obvious connexion with the original metaphor in the words "in a tight place". Nicoll, in his interpretation of the dream, hankers after birth symbolism and compares the cave, with its passage, to the womb. Imagery released from verbal inhibition and drawn directly from familiar experience is a simpler and more natural explanation.

The dream appears to reveal the inhibitory sojourn of visual images beneath the inhibiting verbal images. Expressed in terms of mental process or reaction, the tendency to visualise words during thinking shuts down the tendency to visualise images. When thinking proceeds without words the shut-down tendency becomes assertive. This assertiveness runs riot in the dream because verbal thought has almost disappeared. The disappearance of visual word-images is a striking feature of the world of dreams. Intense visualisation sometimes contains visualised words: "I write when commanded by the spirits," wrote Blake, "and the moment I have written, I see the words fly about in all directions".[2] Seers, however, more often hear words than see them and dreamers, who are embryo Blakes, seldom see words in their dreams. Dreamers have seen some casual and curious combinations of letters but, though printed or written words pervade modern civilisation and are constantly before men's eyes, the dream-world is largely a wordless world and visual images are there supreme.

Many dreams appear to transcribe thoughts directly into pictures by discarding the verbal expression and releasing the inhibited images. A gentleman arranged a hen-run, during the tight time of the war, by surrounding his garden with

[1] *Dream Psychology*, ch. v.
[2] *Poems of William Blake*, Edit. Yeats: Introd.

fish-netting. He remarked to his mother: "I hope no cat will break through the nets". He happened to read, during the next afternoon, of the were-wolf legend and was reminded, by a natural association, of the cognate superstition that witches can transform themselves into cats. That night he dreamed of his garden: he stood where a torn piece of netting waved in the wind. Then he was conscious of commotion, of a creature passing behind him, of a chase, of a capture and of holding a woman in his arms. On looking into her face he saw it wrinkled, withered and lined, as though she had lived for aeons. He had thought with the images released from under his former words. The witch of his dream, emphatically imaged by her wrinkled face, was the "cat" of his thought—an obvious metamorphosis through association.

If these images had entered his mind as he spoke to his mother, they would have been under some measure of inhibitory restraint and he would not have visualised a fear into an actual occurrence. This displacement of meaning occurred in the dream, after the usual manner of dreaming. Images under the inhibitory discipline of words signified a fear, the same images freed from restraint signified an actual, and illusory, event. Dream-metamorphoses of thoughts into illusory events intimate both the verbal inhibition of images and some advantages of such inhibiting. Thought tends to resolve into a survey of images if visualisation is unrestrained. This survey runs in the dream to its completion in hallucination. Schleiermacher regarded dreaming as a replacement of thoughts by hallucinations:[1] this seems to be true and to be true because the mind turns from words to images. Thinking is achieved through the subjection of images, through words which inhibit them and control their appearances in consciousness. This disciplined visualisation is appreciated through its reversions to indiscipline. When minds are assaulted by their images they reel, as Blake's mind often reeled. When they are periodically assaulted in dreams they plunge into illusion. These are "flagrant instances" of the intractableness of the visual image. Words subdue this intractableness and conform it to the logic of thought. Extreme devisualisation may err by excess of discipline as extreme visualisation may err by deficit. Those little dramas that we call dreams are periodical reminders of the regulatory inhibition exercised over visual images by words and of its necessity for thought.

[1] Freud, *The Interpretation of Dreams* (Brill's Trans.), ch. i.

V.—DISCUSSIONS.

A WORD ABOUT "COHERENCE".

VERY probably students of philosophy are tired of discussions about "Coherence". The vitality of the opposition to it certainly makes one think. It seems as if the simple doctrine "Truth is when the fact exists as the proposition says" was so overwhelmingly plain and convincing that very great authorities have finally settled down to acquiescence in it. It *is*, of course, plausible; especially if you take the distinction that the above is the description of truth, though the test, or criterion, or procedure towards the attainment, of truth may be something further.

An elementary mode of statement—nothing profound or ambitious—has occurred to me, which I should like to be allowed to suggest. It is merely this; that the advocates of "correspondence" are speaking of truth in the everyday sense, while we who demand "coherence" do not think you ought to speak seriously or theoretically of truth unless you have *proof*.

"I have truth when I make a proposition to which the facts correspond" or "which corresponds to the facts". Of course, this is universally accepted in daily intercourse. If I am told there is a train at nine A.M., and there really is one, then I am told the truth. The truth is the meaning of certain words. The fact is a touchstone, a test, outside and of a different kind.

So far so good. But we should say, I suppose, that "the fact" here is much too simply taken for anything serious to hang on it. It is all right as long as there is no reason for doubt; but the moment there is room for doubt, and you ask how you are to know whether the proposition is true or not, you must take the step of asking for proof.

Now here you meet with something remarkable. Of what is the proof to be? *Prima facie, of the proposition;* you allege the existing fact, and then, on the everyday assumption, the truth of the proposition is proved.

But this omits a very familiar procedure. It is surely natural and not uncommon to ask for proof of the *fact*. If the fact, which we used as a test, is not proved, then the test fails and the truth of the proposition is not established. Now what sort of thing is the proof of a fact? Two points are clear, surely; it is a procedure by coherence; and it is *the same procedure as* the proof of the truth of the proposition which affirms it.

The first point needs no argument. The procedure of science or of a law court settles the question at once. The test is, "to save the appearances"—to get the result which gives the highest degree of agreement in all the relevant experiences.

And the second point shows that the establishment of the fact and the establishment of the truth which it is supposed to test are one and the same thing. "Cæsar was murdered." This is true, if his murder really took place. Yes, but did his murder really take place? The answer to this question rests of course on an enormous construction of critical theory and harmonised facts—the proof. If the fact is not proved, the truth of the proposition tested by it is not established, and you cannot say the proposition is true.

You may take it ideally—hypothetically; and I think this is sometimes done. You may say "If the fact is real, the proposition is true"; or "that is what I mean by the proposition being true, *viz.*, that the fact is real". Speaking from memory, I think this is Dr. McTaggart's line.

The only objection that I see to this, is that it puts you in the position of habitually speaking about propositions as true when you do not in the least know whether they are true or not. And this seems to me a very dangerous habit, though necessary up to a certain point.

I suppose it is the legitimacy of this mode of speech that Croce defends when he says that we are entitled to affirm about great historical events that "humanity remembers them," apart, as I understand him, from any critical proof. (Suppose you say that "Humanity remembers" the Resurrection. I should admit there is a sense in which you may say this; but not a strict sense.) All I assert is, that we are in the wrong, if in saying that truth depends on fact, we forget that fact depends on proof, and proof, we may add, constantly and in a large measure depends on truth. The apparent difference of kind disappears on analysis. I do not want to disregard the convenience of the innumerable degrees of certainty which we practically accept in daily life. Only a philosopher of Laputa would do so. But I do say that for logical theory and in principle you only have truth where your fact is proved; that is, where your proposition is exhibited as immanent in a system where all relevant experience is included.

This is as far, I think, as the current "correspondence" theory takes you. A further point is raised if you ask whether logical laws have to be assumed apart from coherence; but that I spoke of in the April MIND, and I do not think the current defence of "correspondence" raises it.

BERNARD BOSANQUET.

RELATIVITY, SCIENTIFIC AND PHILOSOPHICAL.

I SHOULD like to disclaim altogether the "Gallio attitude" which Dr. Carr imputes to critics of his philosophical interpretation of the Theory of Relativity.[1] Far from expressing "indifference to the new discovery" I fully admitted both its outstanding scientific value and its philosophic importance.[2] But I still think Dr. Carr misreads its significance as regards the philosophical principle of relativity.

His argument falls into two distinct stages. The first is based on admitted results of the Theory; but the second interprets these results in a manner which the Theory itself in no degree justifies, although his conclusions may, of course, on other grounds, be true; but with any other grounds than the Theory itself we are not at present concerned. I believe I anticipated this second stage in saying that philosophic relativity is concerned "with the relation between mind and its content, or between mind and reality, and applies universally";[3] and I shall try to show very briefly the untenability of his position in more detail. We begin then with the truth that "there is no absolute event in an independent system"[4] (p. 176). This is the essence of the Theory, and the first stage of Dr. Carr's argument. The next question is as to the nature of this independence and system; and it is here that we find what I take to be an altogether illegitimate expansion of the Theory's implications. With the character of the independence which the Theory repudiates I have already dealt. "The independence that is denied subsists not between the mind and observations, but between our scales and units and the observed phenomena" (p. 46). Thus the independent system for Einstein is physical; or if we employ a category purely philosophic, it is ontological. But at this point Dr. Carr crosses the Rubicon, and the second part of his argument begins. For he straightway transforms this ontological into an epistemological category:—"the absolute is not in the *object of knowledge* taken in abstraction, not in the external world, it is *in the observer* or subject of knowledge and a function of his activity."[5] When we take the

[1] MIND, April, 1922, p. 169. For "Theory" *cf.*, *ante*, p. 42, note 3.
[2] *Ante*, p. 52; "epoch-making," p. 47. [3] P. 44.
[4] ". . . and no sameness of events occurring to different observers." This seems to ignore the identity of observations within any one reference system. *Cf.*, *ante*, p. 42.
[5] P. 174. Italics mine.

two statements literally, the fallacy of this transition becomes obvious. The relativist's system of reference (which is undoubtedly part of the external world) is transformed into the "object of *knowledge*" and transferred from the external world to the observer. Or take an alternative statement. "The phenomena of nature must be relative to a standard"—this standard being for Einstein once more the observer's system of reference. But again the same transformation occurs, and Dr. Carr converts this into "a standard *furnished by the observer*".[1] The two positions are, obviously, far from being identical. We may hold the first without accepting the second; and if we do advance to the second it must be on grounds altogether independent of the Theory. The question becomes—Is the relativist's reference system a standard furnished by the observer? I venture to think that this epistemological problem is as foreign to many physicists as relativity mathematics is to the majority of philosophers. It is indeed a problem which can never be solved on any purely scientific basis such as underlies the Theory. The only science which can be appealed to is the science of knowledge. The issue, that is, is epistemological; it cannot therefore be affected by the scientific Theory in any way.[2] It is well known again that Dr. Whitehead emphasises the total exclusion of mind from the realm of Nature for all purposes of science. Thus his position is diametrically opposed to Dr. Carr's; but he, at least, cannot be charged with "caring for none of these things".

Dr. Carr, in short, has unwarrantably altered the venue of the whole enquiry. The introduction of the category of knowledge is justified by no earlier consideration whatever; it is gratuitous and irrelevant to the Theory as such. We must not be misled by the fact that the objects—the reference system—with which the Theory is concerned are "objects of knowledge". That is a truism; for if they were not there could be no Theory. But this is far from proving the truth of philosophical relativity. Of course *if* Dr. Carr's philosophic position had already been indubitably established then the Theory would have provided for it invaluable confirmation. But to confirm an established principle is one thing; indirectly to prove by implication a principle which itself is in question is quite another; and it is precisely this conversion of the ontological system into an epistemological basis which is disputed. The absolute, we have seen, is "in the observer". But further, it is "the 'I think' which in affirming its activity posits existence. The 'I think' does not presuppose existence; it is not generated but generator" (p. 174). This standpoint is analogous to, if not

[1] P. 175. My italics. *Cf.*, "The ground of measure-relations must be physical in nature". Schlick, *Space and Time*, p. 59.

[2] There is a minor but still important point. Dr. Carr argues that "Our 'I think' is attached to a system of reference from (which) we derive our axes" (p. 175). In the Theory, however, the axes themselves constitute part of the system—they are not derived from it.

identical with, that of Italian neo-idealism, where we have "mind as the transcendental activity productive of the objective world of experience".[1] I have already accepted "mind as one, if not the sole, clue to the nature of Reality".[2] But I take this to mean no more than that finite mind is (*a*) directly revelatory of reality, and therefore (*b*) shares a common nature with reality; there is between them no absolute difference nor fundamental opposition. Their common nature constitutes, of course, a problem. I take it to be wholeness—totality—the Hegelian self-transcending ideality of the finite. If this is what Dr. Carr means by philosophic relativity, then our only difference is that he regards it as finally proved by the Theory, whereas I fail to see any direct connexion between them. Subject to later qualification I will admit, with Lord Haldane, that knowledge is "foundational of reality". But this does not mean that "the 'I think' is not generated but generator". What are the implications of Dr. Carr's contention? Sense-experience alone becomes "the immediate object of consciousness, and from it therefore the physical reality of science is constituted". Now what exactly is covered and implied by "sense-experience" is still matter of dispute; here it is sufficient to point out that Dr. Carr equates all "sense-experience"—in principle—to pain—that is to what all schools alike accept as a permanently localised and subjective affection of the individual percipient. In this equivalence there is of course an element of truth; but it is not yet finally established as an ultimate principle, and it is certainly not directly implied by Einstein's Theory.[3] Still further, "the principle yields in the first place a mathematics (which) can offer material to physics. Physics depends on mathematics, not *vice versâ*, and mathematics becomes an *empirical* instead of a *transcendental* science."[4] Much depends here on the precise meaning of "transcendental" and "empirical"; but in any case the statement is correct only within limitations. Relativity mathematics certainly applies to some important branches of physics, but it only expands and corrects earlier mathematics; the general relation between the two sciences still remains unaltered, and the pathway from "sense-experience" to mathematics still traverses physics in the first place; although at later—but more abstract—stages it is almost impossible to distinguish between them. To maintain the contrary is to adopt Prof. Eddington's fallacious argument based on the "embryo mind";[5] nor can we disregard Dr. Campbell's contention that "integration leads to physically significant results only because it

[1] Gentile, *Theory of Mind as Pure Act*, p. 43. [2] MIND, *ante*, p. 46.

[3] If the Theory is accepted in the light of the unconscious subjectivism which has so long dominated science then such a position is presupposed; but this again is not proof. Against this subjectivism there has fortunately set in a strong reaction, of which Dr. Whitehead's *Concept of Nature* is perhaps the best known—but not the only—expression.

[4] P. 173. My italics. *Cf.*, Appendix (2).

[5] MIND, April, 1920, p. 154. *The Journal of Philosophy*, vol. xvii., p. 610.

corresponds step by step to some physical process"; and Lord Haldane's opinion that "Einstein seems to think that we perceive objects, not events. The continuum is got at indirectly by inference, and is not the actual basis of nature as directly known."[1] Physics, that is, is still prior to mathematics.

But the truth that knowledge is foundational of reality itself demands substantial qualification. For finite knowledge declares that to itself reality is foundational. Whether we can say—No finite knowledge, no reality—seems to me questionable; but certainly we must say—No reality, no finite knowledge. For it is with finite knowledge that we are here concerned, and to such knowledge reality is foundational; it is "generator," and knowledge "generated". Hence their common nature; hence it is too that infinite knowledge is one with reality. But throughout Dr. Carr's discussion there runs that unjustifiable identification of physical phenomena with experience, which begs the whole question at issue. We find *e.g.* (p. 171) that "the principle interprets the *behaviour*" of the filings; it deals *i.e.*, with "interpretation of the *phenomena*"; but on page 177 the position is that "the principle asks us . . . to interpret" *experience;* again the initial ontological issues become illogically presented as epistemological; "sense-experience presents itself in the form of event" (p. 174).[2]

One minor point seems to be important. "The principle *interprets* the behaviour of . . . phenomena." But it seems to me that the Theory offers itself primarily as a description, and not as an interpretation in any philosophic sense of explanation.[3] The ideal of many relativists appears to be to dispense with explanation altogether and to content themselves with descriptions—needless to say of the greatest value. They regard it as their province to describe phenomena in exact geometrical or mathematical terms, but not to explain them; just as a bank passbook describes transactions which it does not explain;[4] and both the clerk and the relativist lighten their tasks appreciably by this procedure. But

[1] *Physics, The Elements*, p. 523. *The Reign of Relativity*, p. 110 (condensed). Also *Einstein and the Universe*, p. 5; "mathematical symbolism always embodies an abstraction". "Starting from familiar conceptions . . . we are finally left with Space and Time in the simple form (of) Einstein's physics. . . . Reflections in the realm of metrical geometry acquire a meaning only when its relationship to physics is borne in mind." Schlick, *op. cit.*, pp. 5, 59.

[2] *Cf.*, Dr. Bosanquet. "The moral of relativity is not the permeation of the universe by mind or minds"; (*Meeting of Extremes*, p. 16); and Dr. Whitehead's realistic theory of events in his *Concept of Nature*.

[3] *Cf.*, p. 171. "According to the theory, this is the scientific explanation."

[4] *Cf.*, MIND, *ante*, p. 47, note 1; also pp. 200, 204 (Dr. Dorothy Wrinch): "all use Space as a description. It is the properties and not the intrinsic nature of space which is the subject of investigation." My statement is intended as one of general principle, subject to exceptions on minor aspects of detail; just as mere dates in the passbook may explain a great deal. *Cf.*, further Appendix (1).

philosophy must seek explanations; further, description, as such, can never take the place of explanation, though it may provide material for its correction. The Principle of Equivalence *e.g.*, merely states that gravitational phenomena may be equally well described or expressed in terms of acceleration.[1] But to remain satisfied with the suggestion that accelerated motion is a necessary consequence of the space-time continuum surely betrays a degeneration of philosophic fibre.

There is another possible source of confusion. Dr. Carr refers to "scientific" and "physical reality" (pp. 173, 174, 176). I presume no ultimate distinction is implied between these and some other mode of reality—though there is of course a subordinate distinction of aspect or standpoint. If on the other hand these terms refer to scientific concepts, then these of course—like all concepts—arise from a basis of sense-experience; the "I think" is their generator. But while we all employ the statements that "time—matter—space—are concepts" these are, taken literally, false. Space, *etc.*, are for philosophy reals, not concepts; although they are reals of which we form concepts; and concepts themselves are also real.

Finally as to a few obscurities of expression. "Simultaneity and direction have been falsified by experiment" (p. 176). The Theory, however, so far as experiment is involved, depends on coincidence, and therefore on simultaneity. "The absolute observation is, whether or not the coincidence exists, not when or where or under what circumstances it exists."[2] Again, is the *reality* of the universe finite—"finite yet unbounded" (p. 177)—or its *extent*?[3] and in what sense can the universe be finite because "every straight line is a geodesic which *at infinity* must return on itself"?

I conclude then that if any form of subjective idealism has been *already established*, or is *presupposed*, then the Theory amply confirms that philosophy. On the other hand, the Theory itself cannot substantiate it; it is indeed equally consonant with either objective idealism, realism, or even materialism; it is, for philosophy, a benevolent neutral.

Appendix.

Since the above was written, two lectures by Einstein have been published.[4] Although these deal with ether and geometry, and so might easily lend themselves to a subjectivist interpretation, they seem to me strongly to confirm the "neutrality" of the Theory

[1] "It is impossible to distinguish between a universal force and a curvature of the manifold." Prof. Lindemann in Schlick, *op. cit.*, p. iv.

[2] Prof. Eddington, *Space Time and Gravitation*, p. 87; *cf.*, *ibid.*—"So far as knowledge is knowledge of intersections of world lines, it is absolute knowledge *independent of the observer*". (My italics.) *Cf.*, Schlick, *op. cit.*, pp. 50-53.

[3] *Cf.*, Mind, *ante*, p. 45, note 3. Schlick, *ibid.*, p. 73.

[4] *Sidelights on Relativity*.

if there is any definite tendency at all, it is realistic. Here I can only, however, append a few relevant quotations.

(1) It is extremely interesting to notice that as the Theory develops it turns more and more from description to explanation—even to causal explanation. As regards matter and the continuum, *e.g.*, the latter now ceases to be in itself ultimate. Its "metrical qualities . . . are partly conditioned by the *matter outside* of the territory under consideration . . . ether determines the metrical relations, the configurative possibilities of solid bodies as well as the gravitational fields".[1] Except that ether and matter have new attributes, this is little removed from the older physics.

(2) As to the nature of mathematics, Einstein's position is quite definite; for him mathematics is "transcendental". "As far as the laws of mathematics refer to reality, they are not certain; and as far as they are certain, they do not refer to reality. The *logical-formal alone* forms the subject-matter of mathematics, which is *not concerned with the intuitive* or other content. This view purges mathematics of all extraneous elements. That which gives "point," etc., substance is not relevant to mathematics. We distinguish "practical geometry" from "purely axiomatic geometry". All linear measurement in physics is "practical geometry"".[2] We have here obviously an almost absolute dualism which underlies Einstein's entire treatment of this point. Scientifically it is of course quite justifiable. But it is philosophically unsound, and could be removed, I think, by a stricter logical analysis; but with this the scientist, as such, is not concerned.

(3) This is also true, it seems to me, of a still more important consequence of the Theory—the finitude of the universe. This finitude is spatial—"spatially unbounded and of finite magnitude".[3] But this "spatial" finitude is to some degree at least fallacious; it is spatial only within limitations and under definite conditions; it is perhaps best described as quasi-spatial. For the term "space" has changed fundamentally in meaning—a change perfectly legitimate once it is recognised and adhered to. "Space is endowed with physical qualities; in this sense there exists an ether. Space without ether is unthinkable" (p. 23). All this restricts the problem to the ontological and physical realm. The physical universe of matter—ether—energy—is finite. Hence the fallacy of expressing this in spatial terms. For it is obvious from Einstein's treatment that the finitude is, strictly, a *numerical* finitude, not necessarily a purely spatial finitude in the older sense of extensional. The problem of extensional infinity still remains to be faced; it may be academic, but it is not illogical. Thus there is once more necessary a precise definition of all our terms; until this is achieved confusion is inevitable. It is of course a logical problem; but it must be treated on an ontological basis.

[1] Pp. 18, 20. On p. 20 we have "the *causes* which condition its state". (Italics throughout mine.)

[2] Pp. 28-32.

[3] P. 21. *Cf.*, also p. 41.

J. E. TURNER.

VI.—CRITICAL NOTICE.

A Faith that Enquires: The Gifford Lectures delivered in the University of Glasgow in the years 1920 and 1921. By Sir Henry Jones. London: Macmillan & Co., 1922. Pp. x, 361.

Those who enjoyed the privilege of a personal acquaintance with Sir Henry Jones have always been apt to think that his published writings, vigorous and inspiring as they are, did not adequately represent his power as a constructive thinker. His predecessor in Glasgow, who was also his master, was generally regarded as the greatest teacher of philosophy in his time in Great Britain; and he was also recognised as being among the foremost of philosophical writers. Many of the pupils of Sir Henry Jones were inclined to believe that he was not less great as a teacher than Edward Caird himself; but as a writer he could hardly be placed on a similar level. The lectures that have now been published, taken in conjunction with the important works on Browning and on Lotze, may be held to place him as a philosophical writer on a level at least approximately equal to that which belonged to him as a teacher. In both respects, no doubt, his dependence upon Caird is very obvious, both in the general lines of his thought and in the manner of his exposition. But there are characteristic differences. Caird generally wrote as an expositor and as an extremely sympathetic critic; and, though he led up with elaborate care to definite conclusions which he emphasised with strong conviction, yet it was always his tendency to regard the results as being of less importance than the process by which they were arrived at, and as having hardly any value apart from that process. He used to say that it was much more essential that philosophy should be thoroughly reasoned than that it should lead to results that are either true or valuable. Jones would perhaps have agreed with this; but he had by nature more of the spirit of a prophet, and this makes itself felt in his writings. He was always eager to reach a definite conclusion and to persuade others to accept it. The title of his Gifford Lectures has been well chosen to express his attitude of mind. His philosophy was for him a *faith*—not in the sense in which faith is opposed to knowledge or reason, but in the sense in which it implies firm conviction without complete proof. He claimed what William James characterised as the 'right to believe,' but only after careful enquiry. He describes his conclusion as a hypothesis which cannot be fully verified, but

which can be seen to serve as an interpretation of the facts so far as known. 'It is not easy,' he says (p. 96), 'to exaggerate the significance of hypothesis'; though it has to be admitted that 'no hypothesis is completely worked out' (p. 100).

The general nature of the hypothesis that he seeks to put forward and defend is an idealistic theory of the universe—differing, however, both from such an idealism as that of Mr. Bradley and Mr. Bosanquet and from that of Mr. James Ward, and of course still more markedly from that of William James and those who are described as pragmatists or humanists. His view is essentially the Hegelian theory as interpreted by Edward Caird, but stated somewhat more positively and defended more emphatically. The fundamental assumption may be briefly stated (p. 106) as 'the hypothesis of a God whose wisdom and power and goodness are perfect'. Of the theories that he rejects he evidently stands nearest to the absolutism of Mr. Bradley and Mr. Bosanquet, and a large part of the book is devoted to the criticism of their doctrines. 'It is only,' he says (p. 130), 'in such doctrines as those of Mr. Bradley and Mr. Bosanquet that a genuine recognition of the apparently inconsistent rights of the finite and the infinite, and, as a consequence, of morality and religion, makes itself felt.' But he proceeds to indicate that the treatment of the apparent inconsistency by these two writers appears to him to be in the end unsatisfactory. The discussion of this subject seems to be the most valuable part of the book; and, though it cannot be adequately dealt with in such a review as this, an attempt must be made to set forth the main line of argument. The main points of difference are these: (1) He conceives the Absolute as being personal, not 'super-personal,' and consequently does not recognise any distinction between the Absolute and God. (2) He rejects the view that the human consciousness is properly to be characterised as a 'finite centre'. (3) As a consequence of these differences, he does not admit so sharp an antithesis between morality and religion as is made by these writers. (4) Hence also he is led to affirm the doctrine of human immortality, which they are both inclined to reject. Some comments on these four points of difference may be useful.

With regard to the first point, he quotes (p. 315) Mr. Bradley's statement that 'The highest Reality . . . must be super-personal,' and says that this is 'a word to which I can attach no definite meaning at all'. No doubt it does not at once *tell* what it means; but I should have supposed that it could be interpreted as meaning one or other of two things, *either* a Being who is personal without the limitations that are commonly understood as being implied in the existence of a person, *or* a unity including persons together with their relations to one another (as in a human society or in the Absolute as conceived by Mr. McTaggart). But Jones's contention, if I understand him rightly, is that *all* persons transcend the limitations that are implied in their separate individualities,

and that *all* persons are members of a community and include within themselves certain relations to others; and hence that all persons might be said to be super-personal. The distinction between one person and another is thus essentially only the difference of more or less completeness; so, instead of saying that the Absolute is super-personal, we should say rather that the Absolute is the perfect or complete person. Hence also *every* person, so far as he approaches completeness, may be said to become identical with the Absolute. And thus we are led to the second point.

If the view thus taken is correct, it is clear that there is no sharp distinction between the human and the divine personalities; and that it is consequently misleading to lay special emphasis upon the finitude of the human consciousness. Jones expresses himself with great boldness and force about this. 'There is not any limit,' he says in one place (p. 156), 'to the identification of the worshipper and his God in a true religion.' Again (p. 77) 'the infinite perfection of limitless love actually lives in man. Every good man is the Child of God, and his life in its strivings for goodness is the divine perfection operating within him. God incarnates himself anew in all his children. . . . Here is complete identification, a losing of one's self in utter devotion and dedication, and at the same time that marvellous recovery of the self which entitles man to say—"I and the Father are one".' Here, as in his other references to the religious attitude, Jones avails himself of Christian expressions; but he might equally well have quoted the well-known saying of the Indian sages—'tat tuam asi'. In some respects the statement 'thou art the Absolute,' addressed to every one, is more impressive and unmistakeable than the statement 'I am the Absolute,' which might be taken, and has been taken, as the special claim of a single individual. But I am inclined to think that both these modes of expression should be used somewhat sparingly. They seem to represent only one aspect of the truth. And, of course, it is hardly necessary to add that neither Jones nor the Indian sages meant to deny that man has a finite aspect, as well as an infinite one—that, if he is a God, he is still, as Browning put it, only 'in the germ'. But what Jones was protesting against is the tendency to speak as if he were nothing more than a 'finite centre'. Not only may he transcend his limitations by identifying himself with the divine, but he may also identify himself with his fellowmen. In so far as he 'loves his neighbour as himself,' he may be said to have made this identification; and, if it be urged that such love is rare, Jones at least would reply that, in the love of a mother for her child, it often seems to be fully realised. And I do not think that either Mr. Bradley or Mr. Bosanquet would deny this. But it is perhaps true that they tend to lay the emphasis rather strongly on the finitude of the individual, especially in their references to the moral life, and in their attitude to the question of immortality.

With regard to the relation between morality and religion, it is

important to remember that both these terms are highly ambiguous. In primitive communities religion is apt to mean little more than a number of ritual observances, chiefly designed to avert the jealousy of supernatural powers; while morality means the rules that regulate the actions of human beings with reference to each other and to the society to which they belong. At such a stage it can hardly be doubted that morality is the higher of the two. But when religion ceases to mean the dread of demons and comes to mean reverence for our highest ideals, and when morality ceases to mean obedience to law and comes to mean the effort to realise our ideals, the relations between them take on a very different character. Sir Henry Jones insisted on interpreting both terms in the highest sense that can be given to them; and his complaint against Mr. Bradley and Mr. Bosanquet is that they tend to understand morality in a lower sense, and consequently to represent it as far below what they understand by religion, and even as being somewhat antagonistic to it. This is to some extent a verbal question. Jones refers, in particular (Lecture XI.), to the chapter on 'The World of Claims and Counter-claims' in Mr. Bosanquet's work on *The Value and Destiny of the Individual;* and of course he agrees entirely with Mr. Bosanquet on the unsatisfactoriness of such a world; but he refuses to acknowledge it as the world within which the moral life of humanity is carried on. 'Morality,' he says (p. 164), 'is a continuous development of mankind's will to good. It is a growing process: the highest ideal breaking out into a succession of different manifestations as mankind moves from stage to stage.' And he urges that the supposed opposition between morality and religion is due to an effort to 'separate the two aspects of spiritual life, and substantiate these aspects in their isolation. If the ideal is regarded as real, the attitude of the spirit is religious and super-moral. If the ideal is considered to await attainment, the attitude is moral and apt to be irreligious or merely secular. And inasmuch as it is assumed that the ideal must be either real or unreal, there is no way of avoiding the option between the religious and the moral life. How both can be possible remains unexplained and a mystery incapable of explanation from this point of view.' His contention is that the antithesis of 'real' and 'unreal' is solved by the conception of *progressive realisation:* and that within this conception there is room for both morality and religion. 'Religion, in the end, is a way of life, and life is perpetual intercourse with temporary circumstance. Nor was there ever living morality not inspired by an ideal, or a moral life not in pursuit of what was held to be an absolute and final good.' He was thus a firm believer in the reality of progress, both in the individual life and in the life of humanity.

Holding such views, he was naturally led also to a belief in human immortality—not of course on the ground of a claim for compensation on account of suffering in the present life, but rather on the Kantian ground of the demand for moral perfection. The following passage gives the most definite statement on the subject (p. 347): 'It is

not possible to maintain the limitless love and power of God if the soul be not immortal. There are men, so far as we can see, who die in their sins. If death ends all, then their lives can be called nothing but failures. These persons have missed what is best; they have not used the opportunities of life to build up a good character. The failure of their lives is, so far as they are concerned, the failure of God's purpose. It was not benevolent, or it was not strong enough, to secure their well-being. And what of those individuals who have not missed the purpose of their present life—but, as we would hold, have all their lives morally "attained"? Is the result of their strivings, failures and successes to go for nothing when death comes? To affirm this, it seems to me, is impossible except to those who have not learnt to value spiritual achievement. What remains for him who thus gives up the ethical character and the universal ideal of the cosmos? We have only to ask the question to perceive that he who gives these things up, gives up the conditions under which his rational faculties can be of use. And the answer of the believer to the unbeliever is overwhelming: denial of the immortality of the soul implies absolute Scepticism.' I am not sure that I quite understand what he means by 'scepticism' here. I think he means doubt with regard to the possibility of a spiritual interpretation of life.

On the exact nature of the immortality that is thus postulated, he does not greatly enlarge; but two statements at least are significant. 'My assumption is, that the intercourse between man and his world will have a character on the other side of death similar to that which it has on this side' (p. 344). 'God's goodness being unlimited, the opportunity not made use of by man in the present life is renewed for him in another life, and in still another; till, at last, his spirit finds rest in the service of the God of Love.' It seems clear from these passages that the immortality that he has in view is akin to that which is at least popularly entertained in the East—successive reincarnations till moral perfection has been attained. What happens *after* this attainment seems to be left with a similar vagueness to that which it commonly has in the Eastern doctrines. It seems clear, however, in view of what he has stated, that he could hardly have accepted the Eastern doctrine of *karma*, at least in the form in which it is usually explained. For, according to such explanations, the doctrine appears to rest on that conception of 'claims and counter-claims,' which he so decisively repudiates. The successive embodiments, as conceived by him, would not be determined by any reference to rewards or punishments for previous actions, but purely by the demand for fresh opportunities for moral growth and education. This would seem to imply a more real persistence of human personality than the Eastern sages are in general prepared to admit. A question naturally presents itself at this point with reference to the lower animals. All that Jones says on the general problem applies primarily to human life; but, at several points, he seems to

recognise that the life of beasts is not separated from humanity by an impassable gulf. He refers several times to maternal love as the supreme instance that is known to us of self-identification with another; and he recognises (p. 72) that this form of love is found in the lower animals. And, in another passage (p. 102), he states that 'the whole of the confused and, so far as we can see, cruel history of the struggle of beast with beast and man with man and both with nature, must, somehow, prove to be at every step the fulfilment of a perfect will'. This appears to point to the suggestion that animal souls also are to be regarded as on the road to moral attainment. But this is not explicitly stated. Some might even be disposed to go farther, and enquire whether plants are to be included, or those sensitive metals that Mr. J. C. Bose appears to have discovered. Once the principle of individual persistence is asserted, it is not easy to determine where the line is to be drawn.

Sir Henry Jones was not unaware that the general doctrine which he thus sets forth is beset by serious difficulties, and he admits them with admirable candour. He notices, in particular, the difficulty that arises with regard to the perfection of the divine Being. His fundamental hypothesis is that God is a Being perfect in wisdom, power and goodness. But he has been led also to regard God as immanent in the changing world. This view, as he says (p. 358), 'involves the rejection of the idea of God as perfect in the sense that He is unchangeable. It looks obvious that what is perfect cannot change except for the worse. But even were that true, it does not justify us in saying that the impossibility of change or its absence is either a feature or a condition of perfection. It is evidently a conception that is totally inapplicable to life in every form and at every stage. Life is constant self-re-creation. . . . The whole Universe is a single process; and, if our conclusions hold, the reality at the heart of that process, which expresses *itself* in it, and which in truth it is, is the Absolute of philosophy, the God of religion.' But, he adds, 'it does not seem easy to justify the conception of the Divine Being as moving from perfection to perfection.' Yet this is the view to which he gives his adhesion.

It is here, more than at any other point, that we see the real source of the difference between the doctrine of Edward Caird, which Jones in substance adopts, and that of Mr. Bradley and Mr. Bosanquet. Readers will remember the emphasis that Caird laid upon the conception of an ultimate 'triumph' of the good, and how Mr. Bosanquet criticised that conception. For the latter, as for Mr. Bradley, perfection is essentially timeless; and, so far as it can be said to show itself in time at all, it must be regarded as showing itself throughout its course. Caird and Jones, on the other hand, regarded the time process as a real aspect of the Absolute; and this seems to imply that the end is more perfect than the beginning. Perhaps there is a way out of the difficulty to which Jones does not explicitly refer. His great hypothesis, as

we have seen, is that God is to be regarded as perfect in *wisdom*, in *power*, and in *goodness*. Each of these terms seems to imply an outward reference. Wisdom must mean insight *into* something, power the ability to *do* something, goodness the love and support *of* something. Hence the nature of God, as thus conceived, would seem to imply, as it does with Hegel, a process of going out of self and returning into self. There would be what some have described as a 'metaphysical fall,' as well as a moral rise. Here again we may be reminded of the Eastern doctrine of alternating periods of evolution and involution in the Cosmos. From this point of view, God (or Brahma) would be only the *potentiality* of the completed Cosmos; and it would only be God *together with his world* that could be characterised as absolutely perfect. Or, to put it otherwise, God would not only be present in the cosmic process, but would also stand on a Pisgah height from which that process could be surveyed in its completeness, and to which the developing consciousness would eventually rise. I believe something of this kind is implied in Jones's statements. Of course, even this would not solve the problem of time; and, indeed, he does not profess to have solved that problem. On *any* 'idealistic' theory, it would seem that the Absolute must be conceived as highly complex and hard to comprehend in its totality; and, as we may see from the elaborate work of Mr. Alexander, this applies to 'realistic' theories as well. In neither case can the results be summed up in a few simple phrases; but, while Sir Henry Jones gives us to understand that the *denial* of personal immortality would be fatal to his hypothesis, Mr. Alexander is hardly less explicit in declaring[1] that the *affirmation* of it would be fatal to his. Perhaps these statements may eventually provide us with the means of applying a crucial test to one or other of them. But Jones appears to have attached no importance at all to any empirical tests.

It is hardly necessary to call attention to the excellent—sometimes brilliant—style of exposition that is sustained throughout these lectures. The author's statements are, in general, so transparently clear that it is hardly ever necessary to pause, even for a moment, to enquire what his real meaning is—though sometimes its remoter implications may remain a little obscure. He enforces his views with striking illustrations and pungent phrases, and often with very happy quotations, chiefly from Browning, Wordsworth, and the Bible. And there is a delightful optimism in his outlook on the world which it is not easy to resist. This is all the more remarkable when it is remembered that most of the writing was done at a time when he was suffering great pain. Yet he refers emphatically more than once (pp. 72 and 360) to 'the *friendliness* of the world'. If he has not solved all the problems of that world that he loved so deeply, he has at least heartened us to struggle with them.

J. S. MACKENZIE.

[1] *Space, Time and Deity*, vol. ii., p. 424.

VII.—NEW BOOKS.

The Life and Philosophy of Edward Caird, LL.D., D.C.L., F.B.A. By Sir Henry Jones, LL.D., and John Henry Muirhead, LL.D. Glasgow: Maclehose, 1921. Pp. xi, 381.

This book is a worthy memorial to a man of singularly lofty character, whose philosophical achievement, at a remarkable crisis in the development of philosophy, was of extraordinary value to the thinking world. Moreover, by the recent death of Sir Henry Jones, it acquires the interest of a record, final except for his unfinished Gifford Lectures, offered by himself, of his own thought and feeling in philosophy; so entirely was he one with his great teacher and predecessor in his attitude as a man and as a philosopher.

I purposely spoke of Caird's philosophical achievement at a remarkable crisis in the development of philosophy. Great as is the permanent value of his writings, it is difficult, perhaps, for those who now have the opportunity of beginning where he left off, to appreciate the change in the philosophical prospect effected by the huge task of spadework which he accomplished in his unhasting and unresting activity. If I were to summarise it in three words, I should say that, together with two or three others, he *set philosophy free.*

To say the very least of them, these men set the example of taking philosophy seriously, and of studying in more schools than one. It was not that they brought in an esoteric illumination from Germany. It was rather that they set out to abolish altogether at once the esoteric and the insular. They determined to know and to bring into intel igible connexion whatever was great in the world's philosophical tradition and in the life which was its foundation. Before their ample and persistent study Plato and Aristotle received a new significance, no less than the great English thinkers from Locke to Hume and Mill, and Kant with his predecessors as much as his successors. The English-speaking student at least, when he began the study of philosophy in the sixties of last century, had to beat his own path through thickets where now there are broad high roads.

And here in a further sense Caird's work set philosophy free. Not merely did he help to let in light and air, but he—not broke by violence nor cut as a Gordian knot—but disentangled with long and irksome labour—the only way in which the chains of the mind can be unloosed—the fetters which were strangling thought. With the instinct of a heroic pioneer he made straight for the centre of the labyrinth, the point where the human mind seemed arrested by irresoluble antagonisms and antitheses that admitted no movement towards unity. This point was the philosophy of Kant, in which the ends of the world, so to speak, had come together upon the modern mind.

After Caird had in 1877 published his first book upon Kant, by the time that he had taught in Glasgow for, say, five or ten years from 1866 onwards, and finally after he had published his second Kantian study—

the work of a lifetime for a man of ordinary energy—in 1889, it was clear in principle to all men that the barriers were down. The spiritual world had taken its place as simply the natural world understood in the fullest light, and within it especially the moral life as the natural life lived at the highest intensity and in the largest enlightenment. If something which was not this lesson, but rather, as might seem, its opposite, appeared to be read on the single and several pages of Kant, that was only a case of the common experience, that the great interpreter's insights are apt to be diametrically opposed to the superficial reader's assents.

It was now clear that the ancient antitheses of *a priori* and *a posteriori*, supernatural and natural, the thing in itself and the thing for us, had lost their obstructive power and reciprocally exclusive meaning. Philosophy had regained something of the amplitude and freedom which it had possessed in Plato's day; and its field, no longer parcelled into fractions, revealed endless fascination to enquirers in every corner of its connected whole. New groups of thinkers, new growths of thought, sprang up on every side, and none of them, probably, were without a serious value.

The character of this great work, due to Caird's generation, is proclaimed in the volume before us with striking eloquence and enthusiasm. It is right and natural that the Life, which occupies the first 160 pages of the book (the Letters following with 80, and an appreciation of the Philosophy with 135) should lay stress, as it does, rather on the teaching and civic activity at Glasgow, and the subsequent functions of the Mastership of Balliol, than on the genesis of the books on Kant, the influence of which necessarily came later than that of the professorial utterances. Yet a word would have been welcome on the personal aspect of these works, with the extraordinary exertion which they demanded. The Evolution of Theology indeed, is mentioned in connexion with the closing Oxford period; otherwise the treatises figure mainly in the account of the Philosophy.

The Life, however, is a fascinating study, in its tone of whole-hearted love and reverence, representing with truth and sincerity the effect of Caird's influence not merely on his personal friends, but on the enormous classes which passed through his lecture-room for the twenty-seven years of his Professorship. He had his hand, it is said somewhere in the book, on the heart of Scotland; and those of us who remember what we learned in our friendships with his students whom we knew at Balliol, can form some idea of the effect on Scotland, and especially on her churches, of this continuous stream of awakened and enthusiastic intelligences.

I can only say briefly, what I believe most of us to-day would admit, that in his political attitude and his social activity Caird, like Green, was practically always right. The chapter on the subject in the Life is exceedingly convincing and full of interest for social workers. His persistent and positive attitude, both in industrial matters and on the relations of women to the University, though never attended by noise or controversy, had a greater influence than is generally known.

Of the letters, some make up a very charming private correspondence with a lady singularly gifted both for friendship and for thought, while some, addressed to Prof. (Sir Henry) Jones, reveal Caird's cautious and modest attitude in approaching the work of Mr. F. H. Bradley. With his doubts—or more than doubts—regarding certain aspects of that work both Sir Henry Jones and Prof. Muirhead fully sympathise, and the subject is more amply recurred to in the section on Caird's Philosophy, where some attempt is made to estimate his relation to the younger groups in general. This is not the place for a discussion. But I hold myself bound to suggest my own point of view by just referring to two passages of Prof. Muirhead's argument. It occurs to me that page 280, recognising a feeling

of uneasiness apt to be aroused rather by the width of Caird's formulæ than by any want of truth in them, indicates the need of a further analysis of experience than that which the sequel of the passage furnishes; and that if pages 354 and 355 are to be read as justifiable extremes within one and the same doctrine, their union makes inevitable a fresh enquiry into the relative aspects of appearance and reality which belong to the individual.

Passing from this, I will conclude by pointing out Prof. Muirhead's well-justified allusion to Dr. McTaggart's true and remarkable estimate of the first set of Gifford Lectures, those on the Evolution of Religion (p. 332). If the great books on Kant may seem to-day to have passed into our foundations, the two sets of Gifford Lectures, and especially, for the ordinary reader, these the earlier ones, are still a delight and an illumination to students of religion. Here we have Caird's large and free method inspired by a crowning interest, which carries the reader forward, and invites him to participate profoundly in the actual experience before him. I do not think there is anything finer or more attractive in the literature of modern philosophy.

BERNARD BOSANQUET.

Hellenism and Christianity. By EDWYN BEVAN. London: Geo. Allen & Unwin, Ltd., 1921. Pp. 275.

Mr. Bevan's new volume of essays—most of them have appeared before, but a lover of good literature will be glad to have them collected—has all the charms one has come to connect with his writing, graceful style, ripe and all-round scholarship, a delicate controversial touch, an accurate eye for the *vie intime* of the human soul, fine and reverent Christian spirit. It should make a most acceptable work to any one who feels himself, as many of us do in these days, at the parting of the roads, alive to the high probability that the whole Christian view of life and duty is on trial in our day as it never has been before, and anxious to make an enlightened choice for the better part. I do not say that everyone who reads Mr. Bevan's pages will be induced to choose with him for the "reproach of the Cross," though I have myself no doubt that wisdom lies on that side. But at any rate, Mr. Bevan's reader will not be misled into choosing the other way by being offered a caricature of the Christian alternative,—and it is often caricatured by ill-informed well-wishers no less than by malicious enemies,—or by the childish pretence that the Christian interpretation of the Universe is somehow in conflict with that "science" for which we are nowadays expected to cultivate an exaggerated admiration. The first four essays deal with ground which Mr. Bevan has very peculiarly made his own as an accurate scholar in Hellenistic history and literature. We are introduced in the *Preface* to a guiding thought of the whole volume. What we call our "civilisation," apart from certain ethical and religious elements deriving from Palestine, is a development, a very recent and rapid one, from the spirit of "rationalism" which found its classic expression in Greek philosophy and literature and art, and from this spirit, in the sense of the temper of critical intelligence which insists on "getting the values of things in their true proportions" there is no getting away. The essay on *East and West* then raises the all-important question whether the rationalist spirit is only an expression of something peculiar to "Western European humanity". Is it true that "East is East and West is West," and that there is really nothing *allgemein-menschlich* about the logical temper? The question imperatively demands discussion no less in view of the recent recrudescence of every kind of uncritical

superstition among us than in view of the reckless and confident assertions of many who have no personal acquaintance with the "unchanging East" and some few who have. Mr. Bevan's essay puts very plainly some of the issues which the anti-rationalists commonly contrive to shirk. It needed to be pointed out that the inferences commonly drawn from the absorption of what were once Hellenistic and Christian communities in Syria and Egypt by an apparently sterile Mohammedanism and the decay of the once apparently flourishing intellectual culture of the Caliphate are misleading. The reminder is timely that the facts in both cases are commonly misinterpreted. The populations which seem to have lost the "Western" culture they once had, are not, in fact, the old populations of the countries in question. Hellenistic culture in Egypt and Syria did not die from want of a suitable soil but went down before conquerors from the Arabian deserts who had neither part nor lot in it. And the once promising literature and science of Bagdad, again, was destroyed by the upheavals which sent out successive hordes of Mongolian invaders from Central Asia. So that the alleged facts of the writers about the "unchanging East" never really happened. In the essays on *Bacchylides* and the *Greek Anthology*, Mr. Bevan is preparing the way for the admirable sketch given in the fourth paper, *The First Contact of Christianity and Paganism*, of the societies in Europe to which the first message of the Gospel came. He rightly accentuates the points that Christianity came in the first instance as a great message of hope to a world absolutely crushed under the terrors of the unknown to an extent we find it hard to realise, and that its immediate effect was to offer men a direct communication with a benevolent Ruler in place of an elaborate and puerile system (if the word may be used) of magical compulsions of malignant powers. The extent to which baleful astrological superstition had enslaved the Hellenistic world (as something of the same kind may not improbably enslave us again if Christianity should lose its meaning for us), is admirably illustrated from the "Hermetic" writings by Mr. Bevan. He does not refer to the literature of Neo-Platonism, but the same thing may be seen there. The greater Platonists, like Plotinus, ardently opposed the "world-rulers," even as St. Paul did; men less firm in their faith, like Porphyry, took a life-time to emancipate themselves from their terrors; how low some could sink may be learned from a work like the *Letter of Abammon to Porphyry* for which Iamblichus had so long to take a discredit he did not deserve. The essay on the *Gnostic Redeemer*, which forms a pendant to that just spoken of, discusses in an interesting way the question whether the Σωτήρ of the Gnostics is an original feature of their doctrines or an attempt to graft a borrowing from Christianity on a scheme of magic which really requires not a "saviour" but a mere revealer of spells and "words of power". Mr. Bevan inclines to the latter view, which certainly seems the more logical; I regret that I have not the knowledge of the history of Gnosticism necessary for a judgment on the issue. Two essays which follow give us vivid and pleasing sketches of the personality of the great man who, next to St. Paul, has done most to stamp the impress of a commanding personality on the whole thought of Western Christianity, St. Augustine, "the first modern man". I suspect, though Mr. Bevan's *pietas* towards the greatest intellect of the centuries when our modern world was in incubation will not allow him to say so, he, like myself is by no means of opinion that the enduring influence of Augustine has been wholly for good.

In the short essay on *Dirt* we have a very happy attempt made with true psychological insight to throw light on the curious and universal association of the unclean and the exceptionally revered and holy under the common notion of "taboo". I commend very strongly the sober and

judicious tone of the three essays which deal specially with features of the Christian conception of the world's history which arouse a great deal of controversy at the present moment, those on *Human Progress, Eschatology* and *Reason and Dogma*. If I say no more about these essays, it is only because I could do nothing but express my own warm sympathy with almost every word of them. I am particularly delighted to see that Mr. Bevan will not consent to be "in the fashion" by expunging belief in the miraculous, the Second Advent and the presence of genuine prediction of the future in Scripture from his creed. This may damage him in the eyes of some uncompromising "modernists," but I feel assured that he has the best of the argument and that, without any superfluous jettison of articles of belief, he succeeds in his last essay, *Christianity in the Modern World*, in meeting the "rationalist" (of the Rationalist Press variety) with as much humour as logic. The germ of the whole book, to my mind, however, is the essay on *A Paradox of Christianity* with its right insistence that the supernatural hope is of the very essence of Christianity and that it is lip-service to profess devotion to Our Lord's conception of human life and duty when your view of our "condition" and destiny is all the while that of Epicurus or Horace.

A. E. TAYLOR.

Die Religionsphilosophie des Als Ob, eine Nachprüfung Kants und des idealistischen Positivismus. By Dr. HEINRICH SCHOLZ. Leipzig: Felix Meiner, 1921. Pp. 160.

More than ten years ago I endeavoured, by means of an extended review in MIND (No. 81), to draw attention to the importance of Vaihinger's monumental survey of the uses of *fiction* in our cognitive operations, but apparently neither my review nor its own merits availed to tempt English philosophers to undertake the 800 pages of Vaihinger's great work. In Germany its fate was very different. It ran through many editions, and founded a school. 'Idealistic positivism' now has its own *Zeitschrift, Die Annalen der Philosophie*, in which this valuable contribution to the philosophy of religion originally appeared. Its author, Dr. Scholz, is full professor of philosophy at the University of Kiel and an honorary D.D. of Berlin, and his work is a very thorough, lucid and intelligent criticism of Vaihinger's religious philosophy and kindred doctrines.

Dr. Scholz sets himself to examine Vaihinger's claims that religion is wholly practical, and therefore does not imply the real existence of any God, but only willingness to act *as if* such a being existed, and that such was the innermost meaning also of Kant's religious philosophy, at least in his most lucid moments. Coming from so great an authority on Kant, this contention naturally made a great sensation, which was increased by the copious documentation Vaihinger produced. Dr. Scholz treats it very seriously. Incidentally he discusses also F. C. Forberg, who actually held the view Vaihinger attributes to Kant, Fichte, who did not, Reinhold, and others, who anticipated Vaihinger. To clear the issue, he distinguishes several forms in which the notion of 'fiction' may be applied to religion. (1) A man may act *as if* he believed that God existed, though he *doubts* it. (2) He may act *like* a believer, though he *disbelieves*. The first is called the *sceptical*, the second the *paradoxical* religion of the *as-if*. It is however also possible (3) to act as if one *knew*, though one knows one doesn't. This is *not* the *as-if* attitude proper but may be called the *Critical*. I may here interpolate that the classification is not exhaustive, because one may (4) act as if one believed in order to obtain thereby evidence to justify the belief, and that *this* is the true pragmatic attitude. Now ac-

cording to Vaihinger Kant's deepest conviction was (like his own) the second, while Dr. Scholz holds that it was the third, and that religious pragmatism is a further and valuable variety. The exegetical struggle of Dr. Scholz with Vaihinger over the body of Kant is spirited, and almost Homeric: it leaves me with the impression that *both* champions carry off trophies. In other words, Kant is pulled to pieces, which is the usual result of coming to close quarters with him.

After this, Vaihinger and pragmatism are compared. An accurate and competent exposition of the religious bearings of pragmatism arrives at the conclusion that they are real philosophy and not preaching. Pragmatism does really overcome the conflict between faith and knowledge, and is comparable with Fichtean idealism. It agrees with Vaihinger (1) in its radical empiricism and rejection of the speculative implications which survive in Kant. (2) Both agree with Kant that theoretic agnosticism is inconclusive. (3) In both their philosophy of religion follows at once from their general principles. This is not so in Kant. They differ in that (4) The *as-if* doctrine makes God's existence a *fiction*, while pragmatism takes it seriously. (5) Vitally valuable judgments are as such called *true* by pragmatism, but *false* by Vaihinger.

Finally Dr. Scholz discusses whether either view is really tenable. Vaihinger's fundamental notion of *fiction* is attacked with almost the same objections as were urged by me in 1912, and it is shown (convincingly) that knowing can be regarded as a *falsification* of the real only if its true *aim* is supposed to be 'copying'. Dr. Scholz then criticises the core of pragmatism, its notion of truth, and finds that though it applies well to the truth of scientific theories, laws and synthetic principles, it fails to account for logical and mathematical necessities of thought, and judgments of perception and of history. It would also include conventional and beneficial lies among truths, and so is both (1) too narrow, and (2) too wide. (3) It fails to specify *for what* truths are valuable. (4) It slurs over the transition from empirical to moral verification, which is wholly different. It is further pointed out that moral and religious convictions are not merely tested by their vital value, but to a large extent demand theoretic justification.

Hence Dr. Scholz in the end rejects the reduction of religion to a practical attitude which is common to pragmatism and the *as-if*. Religion involves a consciousness of God as the *ens realissimum*, and it is impossible toaffirm God in practice, while denying Him in theory. So much for Vaihinger. As for pragmatism, it has done good service by pointing out that indifference to religion is not a merely theoretic attitude; but, though philosophy can, religion cannot, accept its reduction of God to a working hypothesis.

I trust that the above analysis makes it clear that Dr. Scholz's argument is not of the gaseous consistency so common in religious philosophy, but furnishes food for reflexion to all who are interested in religion. It disposes, I think, of Vaihinger; but not of pragmatism. For it is *not* true that the pragmatic interpretation will not apply to *all* truths.

(1) As regards the 'truths' of logic and mathematics, Dr. Scholz does not appear to have been acquainted with all the relevant literature. (2) As for judgments of perception, it is fallacious to argue (p. 140) that their truth has to be presupposed by pragmatism, because perceptions yield the *data* to be evaluated. For it is not admitted that truths of perception are really 'given'. Perceptions are always *interpretations* of *data* (which can never be got 'pure'), and as such may be true or false, valuable or the reverse. (3) It is amazing that the pragmatic import of historical judgments should be denied at a time when every nation is finding its political past a mill-stone round its neck, and denied by a German, when

the Versailles Treaty and the whole treatment of Germany explicitly professes to rest on a belief about the historical causation of the War. Dr. Scholz's error is however plainly due to the common confusion of propositions with judgments. Whenever a historical proposition is turned into a living judgment, it will always be found that its truth is (*a*) asserted against an alternative version of history, and (*b*) based on consequences that are still operative and verifiable. (4) The difficulties about beneficial and conventional lies (which are only verbally lies at all) all arise from the ancient blunder of converting simply 'all truths work'; they are easily disposed of by distinguishing the various sorts of truth-claim and the parties involved, and by observing that any lie works only so long as it is taken as a truth. (5) If the answer to the question 'for what are truths valuable?' is to be stated in general terms, it must be 'for purposes'. Anything more specific demands a specification also of the truths. (6) It may be admitted that many religious doctrines have 'theoretic' implications, but it does not follow that these cannot be tested pragmatically. For just because 'theory' is essentially a means to 'practice,' and all our activities are ultimately vital, the distinction between empirical and moral verification cannot be made absolute. Dr. Scholz makes the further mistake of supposing that because in religion considerations other than those of ordinary empirical evidence and scientific reasoning become relevant and have to be added, the latter are to be ruled out. Whereas pragmatism has no reason to assume *a priori* that religious hypotheses are incapable of verification in *any* way that is capable of engendering conviction in the human soul, or to abandon its belief that "by faith we may also *know*".

F. C. S. Schiller.

The Ethical Theory of Hegel: a Study of the Philosophy of Right. By Hugh A. Reyburn, Professor of Logic and Psychology at the University of Cape Town. Oxford: at the Clarendon Press, 1921. Pp. xx, 271.

This book was dedicated to Sir Henry Jones by an admiring pupil; and the fervent love of the 'sincere milk' of the Hegelian gospel, by which Jones was so eminently distinguished, has obviously been, in a high degree, communicated to his disciple. Hegel's *Rechtsphilosophie* has already been translated into English (though perhaps not quite satisfactorily) by Mr. S. W. Dyde; and what Mr. Reyburn gives us here is a careful and most instructive commentary upon it, with occasional critical discussions. To present any constituent part of the philosophy of Hegel in a way that makes it thoroughly comprehensible to educated English readers is by no means easy; and Mr. Reyburn seems to me to have carried out his task with a remarkable measure of success. He knows where the difficulties lie, and he does not shirk them.

He wisely devotes a considerable part of his book to a general account of Hegel's philosophical attitude and method, explaining, in particular, the relations of the Logic to the more concrete studies, the sense in which Hegel's identification of the Real and the Rational is to be interpreted, and the place occupied by the *Rechtsphilosophie* in the system as a whole. He then proceeds to a detailed analysis of the Philosophy of Right, devoting special attention to everything that seems liable to misinterpretation, supplementing his account by frequent references to other writings of Hegel, and occasionally, especially near the end, calling attention to what appear to be inconsistencies or defects in Hegel's treatment.

The work is so well done that one is tempted to wish for more; and

perhaps I cannot do better in this review than try to indicate some ways in which it might possibly be improved in a future edition.

I suppose I ought not to suggest any change of title; but it may at least be permissible to remark that 'Theory of Ethics' is calculated to convey a somewhat erroneous impression. Anyone who took up the book expecting to find in it a discussion of the topics commonly dealt with in ethical treatises, such as the relations between desire and will, the meaning of motive and intention and the judgments that are passed on them, the *summum bonum*, the duties and virtues, the methods of determining what is right (as distinguished from what are *rights*), would be a good deal disappointed. Moreover, the term 'ethical' is used in the body of the work in a somewhat special sense. No doubt to call the book 'Theory of the State' would suggest too narrow a reference; and 'Theory of Rights' would be puzzling. But I do not see why it should not be called 'Social Philosophy'. All the subjects dealt with appear to fall readily under that designation. But no doubt the distinction between Ethics and Social Philosophy is a somewhat thin one; and perhaps Hegel would not have admitted it.

Passing to the method of treatment, I am inclined to agree with Mr. Reyburn that this part of Hegel's system is peculiarly well adapted to serve as an introduction to his philosophy—especially perhaps for somewhat mature readers who have already acquired an interest in legal, moral, and political questions. Hence he was well advised in devoting a considerable part of the book to a general explanation of the Hegelian point of view. But I believe he might, with advantage, have done rather more than he has to remove some of the prejudices that are apt to be present in the minds of readers on their first introduction to Hegel—especially readers who are already familiar with very different methods of treatment. For such readers it is probably not enough, for example, to explain that in the statement that 'The Real is the Rational,' Reality has to be understood in a special sense. What is wanted is rather some concrete instance that would make the meaning plain. I suggest that the case of the Family might be taken as such an instance. The normally permanent monogamic type seems clearly to be the only one that can be rationally defended. Now, many other types have certainly existed. Westermarck's History, which has just appeared in an enlarged edition, gives a very full account of them. But what one learns from reading such a history is that the other types have only had a sporadic existence at certain times and places in which the circumstances were peculiar. 'What is deepest rooted in nature,' as Carlyle put it, is what on the whole is 'found growing'. Instances of this kind seem to me to make Hegel's meaning clear in a way that no definition of terms can do.

Again, readers of Hegel are apt to get the impression that he is needlessly hard—almost brutal. He was of course aware that human life cannot be altogether made into a bed of roses; and, like Carlyle, he thought it necessary to set himself in opposition to certain forms of sentimentality that were prevalent in his time. His emphasis on punishment is one of the points at which this is apparent. Now, some readers might be apt to think that, like Carlyle, he was in favour of the treadmill, or that he would have approved of some of the harsh methods that have prevailed in certain English schools. To guard against this, it should be clearly pointed out that the kind of punishment he has in mind is that which the offender himself feels the need of when he repents—such a punishment, for instance, as Dr. Johnson inflicted upon himself when he stood bare-headed at his father's bookstall in Uttoxeter. His decisive condemnation of slavery is well emphasised by Mr. Reyburn; and here also his attitude might be contrasted with that of Carlyle.

Finally, there is a general impression in many quarters that Hegel's theory of the State laid the foundations of what is now commonly referred to as Prussianism. Mr. Reyburn's book was written before the War; and this ground of attack was consequently not so much present to his mind as it would have been now. When a new edition is called for, it might be well to refer at some length to this subject. It could, I think, be pointed out that Hegel's approval of Prussian methods has been considerably exaggerated. Some of his own contemporaries blamed him for the half-heartedness of his support. His conception of the place of the monarch seems clearly to have been suggested by the British constitution rather than by the Prussian. But, it may be urged, did he not at least represent war as a permanent necessity, and did he not ignore the suggestions that had been already put forward by Rousseau and Kant for the establishment of a condition of lasting peace? Perhaps he ought to have taken more account of these. I think Mr. Reyburn is right in believing that the concluding part of the *Rechtsphilosophie* is the part that is most open to criticism. The best defence, I suppose, is that Hegel was, contrary to what is sometimes thought, an eminently practical person. He was anxious not to give his support to anything that could not be seen to be, in Aristotle's phrase, *πρακτὸν καὶ κτητὸν ἀνθρώπῳ*; and at the time at which he wrote he might well have been excused for thinking that such proposals as those of Rousseau and Kant were Utopian. But there does not seem to be any ground for thinking that he regarded war as in itself a good, or as a normal condition of national life. He mentions it as the negative element that confronts the State in the dialectic of history and as being essentially tragic. We might have expected him to point to a higher unity in which the weakness of the isolated State could be overcome. But Hegel declined the role of prophet. He was a believer in progress, as his *Philosophy of History* shows; but he was convinced that the philosopher, like the owl of Minerva, can only venture to come out with his interpretations when the day's work is over. This may have been a weakness in him; but at least it would not be easy to point to any other philosophers who have been much more successful in forecasting the future. He certainly did good service, at a time of considerable anxiety and serious dismemberment, in emphasising the importance of a stable and well organised constitution. I think he had a keen consciousness of the weakness that lay in the somewhat somnolent Gemüthlichkeit of his native Würtemberg, and looked to Prussian energy as a corrective. Also it should be remembered, as Mr. Reyburn points out, that if, in the *Rechtsphilosophie*, which is mainly concerned with the dialectical evolution of the State, he seems somewhat to overrate the importance of that aspect of human life, there are other writings of Hegel—especially those concerned with art and religion—in which he deals with modes of experience that transcend the limitations of the State.

Mr. Reyburn is careful to state in his Preface that the fellow-workers who assisted him are not to be held responsible for his 'mistakes'. I must confess that I have not succeeded in detecting these. There is, indeed, an unfortunate slip in the Introduction (p. xx), where he says that he translates *Realität* by 'reality': it is by 'actuality' that he translates it. There may be other small defects in the body of the work; but, on the whole, it may be heartily recommended to all who desire to gain a genuine insight into the social and political side of Hegel's philosophy; and, as Mr. Reyburn is still a comparatively young writer, it may not be irrelevant to add that his work gives promise of still greater achievements in the future.

J. S. Mackenzie.

Self and Neighbour. By E. W. Hirst. London: Macmillan & Co., Ltd., 1919. Pp. ix, 291. 10s.

Mr. Hirst's book is in every way a competent piece of writing. He has worked out for himself a doctrine of the Moral Good; and he presents it with a firmness and a quiet dignity that testify to his belief that his view will stand, as it has obviously sprung from, the criticism of reflexion and of practice. One is a little struck by the contrast between the essential poise and self-possession of the book and its anxiety to relate its teaching at every point to kindred doctrines. Mr. Hirst knows his own mind: and his book would perhaps have been more direct and convincing if he had been less careful of the opinions of others. But it is a fault of a generous mind: and it does not affect the value of a genuine essay in constructive ethical philosophy.

The first part of Mr. Hirst's book is a critical historical survey of leading types of ethical theory. His aim, it is clear, is to show that the defects of these theories have arisen from their failure to start from and remain within what is to Mr. Hirst the central ethical and psychological fact of community. It is easy, of course, to find in at least one main stream of ethical thinking, ample recognition of the dependence of 'ego' on 'alter,' and of both on 'society'. But Mr. Hirst's view is that the relation has not been taken concretely enough, and has been constructed into something other than it actually is. Either the relation is one obtaining between two independent selves, and therefore essentially secondary—so that the moral good is stated in terms of individual persons: or (more rarely) the persons are mere terms of a relation, so that the good is not 'personal' in any recognisable sense of the word. The first alternative gives the varying forms of egoism and of altruism, and the attempt to find a satisfactory mediation between them. The second on which Mr. Hirst has less to say in Part I., though it is just as relevant to his purpose, is really the denial of personality as a moral end at all.

The criticism leads up to Mr. Hirst's exposition of his own view. Essentially this is an attempt so to interpret the doctrine of community as to give reality both to selves and to the relation between them, to hold that while selves are constituted by their relations to one another, the selves which are thus constituted are themselves real; and their relations are created by their own activity. The 'good,' for Mr. Hirst, is just this 'inter-personal activity,' the good at once of a self and of all selves, at once personal and social. "It is not 'good' which is common, but 'community' which is good." It is in this direct inter-personal relationship, in this activity for the attainment of common ends that the individual finds his 'good': and in finding it, apprehends that the divergence of interest between 'self' and 'others' does not exist.

This activity is not formal. It is not a mere will to good, but a will to achieve such ends as spring from the reality of its existence. The basic and dominating thing is that in a society of personalities living at this full stretch of common life, purposes do emerge: and if, on one side, it is these purposes which seem to give content to the common will, on the other hand, they are good because they express that will at its fullest. The simplest and most direct form of this inter-personal activity is in the relation of parent to child: and in the purposes that spring from this relation, there is a type of the working of the good will in every kind of manifestation. "If it be asked, what is the nature of community as an ethical principle, we can only reply that, indefinable as it is in itself, it is such a life as a man would live who regarded humanity as a family." This experience, Mr. Hirst insists, and the justification of it as the 'moral good,' are not to be compassed by intellectual means alone. "To be

fully known, it must be experienced. . . . It is not describable in merely intellectual terms: for it is a form of the life of the self as a whole, and is illustrated in the unity felt by the members of a family."

Mr. Hirst adds several interesting chapters on the theoretical and practical implications of his doctrine. I should like especially to draw attention to his treatment of the relation of metaphysics and ethics. But the critical question for his book is as to how far he has succeeded in making this conception of the good as inter-personal activity at once consistent and concrete. It is a difficult position to state: the matter of emphasis is so all-important. But Mr. Hirst certainly seems to me to have done considerable service in the mere stating of the problem, and to have given a persuasive defence of his general thesis. He might, perhaps, since the point is so very central to his position, have elucidated more fully the process by which he conceives that the ends which are sought in the primary form of the family so expand that they require for their achievement a wider community of life inspired by the same inter-personal activity. But the principle of the deduction is clear enough: and Mr. Hirst may fairly claim to have shown the possibility of basing an ethical theory on a consideration of the concrete relationships within which selves maintain themselves and discover their own nature.

H. J. W. H.

Evolutionary Naturalism. By Roy Wood Sellars. Chicago: Open Court Publishing Company, 1922. Pp. xiii, 343.

Mr. Sellars has written a book notable in the kind to which we have now become accustomed from the producing generation of American philosophers. It is an industrious contribution to the coming "final" system of Evolutionary Naturalism. Starting with an exposition of the theory of knowledge known as Critical Realism, Mr. Sellars ploughs remorselessly through ten chapters of category-genetics, and attains the crux of his system in the penultimate chapter on the Mind-Body problem.

All the modern discussions are familiar to our author, more so, perhaps, than the older philosophies, for he shows a keen anxiety to be on the crest of the incoming wave; and he has obviously been influenced by "the truth" in all these vain attempts, and has dexterously eliminated the falsity, and "by stepping warily and using distinctions" (p. 194) has welded the whole together into a world-view in harmony with the conclusions of science, and largely content with those conclusions. In a phrase, he offers a view of nature as a self-explanatory, self-sufficient, self-creating, physical reality, as opposed to a "dead-level" mechanical naturalism. And if as against mechanism he cites "creative synthesis," even more pointedly as against supernaturalism he offers evolution and the genetic method. His is a naturalism which does not level down, and if it does not, as idealism does, level up, at least it faces facts such as the appearance of the new quality of life in organic systems, and more important still, that crucial instance of such novelty, the conscious experience of man which emerges from, and in turn guides, his living body.

Into the details of Critical Realism I cannot enter, but I must indicate its main results as they affect the present speculation. The fundamental thing is the distinction between subjective *contents* and *objects* known, which corresponds more or less with the distinction of two kinds of knowledge: *awareness* of contents and *knowledge-about* objects. At the same time, contents are *objects* of awareness; they are subjective only because they are "intra-organic responses to stimulation of sense organs" (p. 26). Mr. Sellars' use of the terms *content*, *object*, and *thing* is very

perplexing, but I gather that the term *content* covers not only sense-data but also the phenomenal objects of perception, as well as propositions; everything, in fact, except physical things (and perhaps other minds). The phenomenal object, although it is not a thing, is more than mere passive sensuous content; it involves judgment, and is the synthetic unity of sense-datum and meaning, dominated by the "sense of thinghood" (p. 26). The plain man mistakes this object-content for a thing and is thus guilty of Naïve Realism; the Idealist makes the converse blunder. But the Critical Realist knows that the physical thing is not the object of perception, and is not given to awareness. Nevertheless we may *know about* it, and that knowledge is the result of inference from the patterned and continuous data (p. 190), which are already adaptive responses to the things which cause them. In perception we "clothe the object" (p. 34) in the sensuous content, but in knowledge-about we use the content as material for analysis and construction. And what do we know about physical things? We know that they are orderly, massive, and executive (p. 15), have comparative size and position, structure, texture, constituents, relations; that they change, behave, and have capacities of various kinds (pp. 35, 42).

This is not the place for detailed criticism of such a theory, but those who are interested in the matter will find that Mr. Sellars is really in difficulties because he has not realised (or remembered) that the distinction between awareness and knowledge-about is not at all identical with that drawn by Mr. Alexander between enjoyment and contemplation.

However that may be, it is upon his epistemological distinctions that Mr. Sellars bases his solution of the Mind-Body problem. That solution is that mind is a "physical category" (p. 299), that consciousness is a "natural ingredient of functioning cortical systems" (p. 294), and that the reason why we cannot grasp the connexion is that while we have *knowledge-about* the organism, we have immediate *awareness* of consciousness itself. Now that is undoubtedly ingenious and contains a profound truth. Nevertheless, however we might be prepared to allow that a distinction of enjoyment and contemplation would conceal the actual emergence of enjoyed consciousness from contemplated cortical processes, there is certainly no reason to suppose that it must conceal the secretion of the objective contents of awareness. If that process is not clear it is simply because it is secret and occult, or, as I should suggest, highly speculative.

It is from this notion of Creative Synthesis that Evolutionary Naturalism proceeds. Mr. Sellars lays stress on the development of biological science as tending to undermine the earlier "dead-level" naturalism. Even inorganic matter is active, subtle, and responsive; it lends itself to "mobile integrations which under the hand of time may lead to tremendous novelties" (p. 263). Creative synthesis means "the frank admission of novelty without an appeal to a superphysical agent" (p. 297). Now, however valuable that notion may be for scientific methodology, it is not philosophically satisfying. There is all the difference in the world between *explaining* a difficulty and *getting used* to it. Philosophy must do more than "reflect the contemporary drift" (p. 298). What are the implications and limits of creative synthesis? I suggest these problems as worthy of Mr. Sellars' earnest consideration. I do not say that they would lead him further than he is prepared to go, but they would certainly lead him further than he has gone. Nor would his journey necessarily be in the direction of a vicious supernaturalism; rather the contrary: it was not a good naturalistic explanation which was offered by the first High Priest, that having cast gold into the fire, "there came out this calf".

H. F. HALLETT.

An Analysis of Certain Theories of Truth. By GEORGE BOAS. University of California Publications in Philosophy, Vol. v., No. 6. Berkeley, Cal., 1921. Pp. 187-290.

The University of California has long distinguished itself by the abundance and quality of its philosophic publications, and the above study takes high rank among its productions. It is well argued and well written and makes a real contribution to its subject. Dr. Boas starts by pointing out that theories of truth have the peculiarity of forming part of their own subject matter, *i.e.*, of being themselves cases of the 'truth' they set themselves to define. Hence any definition of truth that is adopted must (1) be true of the definition itself. This he calls being *self-critical*. (2) That it may not begin by begging the question, it must be *general*, *i.e.*, must not presuppose any specific metaphysic or psychology or epistemology. (3) It must produce a tenable account of *falsity*. (4) It must be *applicable*. He then proceeds to examine how far the current theories meet these requirements.

(*a*) The first of these he calls *Logical Hedonism* and regards as very common. This insists that truths must please, and are adopted because of the 'emotional thrill' they give. It is itself pleasing, and so 'self-critical'. It is relativistic indeed, being relative both to those it pleases, and as yielding no absolute truth: but this does not damn it. For by its own criterion a theory could become absolute only by pleasing every soul or an absolute soul (the latter only if it were absolutely the only soul!). It is also 'general,' and accounts for falsity, by reducing it to discomfort. But it is not *applicable* to all cases. We cannot decide by its means whether Cæsar crossed the Rubicon in A.D. 1493 or in 625 B.C., if we don't care when he did.

(*b*) Truth as the irresistible is also subjectivistic. What cannot be denied and must be believed, is true. This theory is not 'self-critical'. For if it were, it would be universally adopted the moment it was heard. Nor is it general, for it demands a *passive* subject. It has no criterion of falsity; nor applicability, because it cannot say when psychological impressiveness passes into logical irresistibility.

(*c*) The 'correspondence' theory has suffered from "the obscurity of the obvious" and was never stated fully. Now, it is never stated openly. Here the initial difficulty is its inapplicability. We have no means of knowing whether the correspondence with 'fact' in which the theory consists, exists in fact. For this same reason it cannot be declared 'self-critical'. It accounts indeed for falsity as correspondence with non-existent fact; "but to what do *meaningless* propositions correspond?" Or practical? In some forms, however, it appears to be 'general'.

(*d*) Formal consistency, or lack of contradiction, may be taken as assurance of truth. This makes truth systematic, but does not apply to the postulates on which the consistent systems rest. Also a system may be consistent and false. In fact two false, or one true and one false, propositions may be consistent, and two false, or two true, propositions, inconsistent (*e.g.*, if they belong to different geometries). So the theory is not 'self-critical'. It is 'general' enough, but can recognise falsity only in a few self-refuting propositions. It cannot be applied, because a contradiction only tells us that something is wrong, not what is right.

(*e*) Can truth be made consistent and absolute in one total truth and the coherence of the one significant Whole be The Truth? Such truth would be reality, and human truth pales into insignificance beside it. However "the theory is not self-critical. For if truth is the whole, statements about truth are not true" (p. 248). They cannot be more than partly true. So absolutism also, of which the theory asserts the truth,

has only partial truth, and there's no knowing how far it is true. Even the absolutist moreover must admit that the Whole is not wholly true, but includes some falsity, *e.g.*, 'Absolutism is false'. Ergo it is either true that absolutism *is* false, or else it is *not* the whole of truth. Further, absolutism is not 'general'. It requires a specific metaphysic, theory of judgment and logic of (internal) relation. It seems, however, to account for falsity. Falsity means the claim of a partial judgment to be true. But as *all* judgments are partial and *all* claim truth, what follows is (1) that all are false, and (2) that only absolutists err. The former consequence might be welcome, though it would not tell us what made them false nor what the distinction between 'true' and 'false' could mean. The latter means that the absolutist alone can be aware that the truth-claims he makes are false. His adversaries would not make them, if they thought them false. Lastly, the truth that all partial truths are only partly true cannot be applied to determine how true they are.

(*f*) There remain only the voluntarists. For them truth arises out of the interpretation of signs. Such interpretation is purposive and experimental, and continues till the impelling interest is satisfied. Now this theory is plainly 'self-critical'; it is willing to be tested by its working. It is also general enough, though it implies an activist epistemology. Error it explains as the 'anti-truth' which defeats it. Its applicability is assured, because it is built for application, and lets verification determine verity.

I trust that the necessity of compression has not entirely obscured the dialectical brilliancy of Dr. Boas's argument, which calls for criticism on one point only. Dr. Boas at times substitutes a proposition for a real judgment, as formal logic teaches its students to do. This is why he dismisses Logical Hedonism for failing to get any pleasure out of 'Cæsar crossed the Rubicon in A.D. 1493': he has failed to notice that this is a paper 'judgment' or mere proposition, until it has been put in a context in which it is really asserted and its truth or falsity matters. The moment this is done, its emotional value will appear. Thus the 'hedonistic' theory will satisfy the four tests as well as the voluntaristic—a result foreshadowed by the fact that it often fuses with it into the conception of truth as the satisfaction of a purpose, and by the common charge that for a voluntarist truth is whatever he wishes to believe. So far from admitting, however, that "if 'true' is defined as 'agreeable' the two terms ought to be equivalent" (p. 193), Dr. Boas should have pointed out that the demand that truth should be desirable, satisfactory or agreeable, could not be converted into 'anything agreeable is true'. It cannot mean more than that it is *a species* of the agreeable, and if so its *differentia* must be stated. 'Logical hedonism' would thereby transform itself into the innocuous theory that truth was the pleasure or value arising from the satisfaction of a cognitive purpose. Which would be quite a good definition for human purposes.

F. C. S. SCHILLER.

Fichte et son Temps. Vol. I. By XAVIER LÉON. Paris: Armand Colin, 1922. Pp. xvi + 649.

M. Léon has planned his work on a magnificent scale. In this volume he deals only with Fichte's life till the departure from Jena at the age of thirty-seven. Two more volumes will be required to complete his task. So large a book enters naturally into much detail. But M. Léon never allows the details to obscure the main outlines. In spite of the trees we can always see the wood, and this is the highest praise that can be given to the author of a biography.

As long ago as 1902 M. Léon published a work on the philosophy of Fichte which gave a most full and admirable account of it. In the present volume, in consequence, there is no very long exposition of the works published by Fichte in the period under consideration. It is his life, and the influences which affected him, of which we learn.

There are three things which are brought out very clearly in this volume. The first is that the ardent belief in the virtues and destiny of the German nation which is so marked in his later life was absent in his earlier years. He then looked to France for the salvation of the world (Fichte, unlike Hegel, was always convinced that the world was in a bad way, and required salvation very urgently). As late as 1799, he contemplated removing to the University of Maintz, which was just then in French territory, and hoped to be followed by many of his colleagues and pupils. It was not till the establishment of the Empire that he decided that France was not the destined saviour of the world, and that Germany was. This change of opinion took place later than the period dealt with in this volume, but it is sketched very effectively by M. Léon in his Introduction.

The second point which becomes clear from M. Léon's book is the tremendous position which Fichte held in Germany in 1799. No such position had then been held by so young a man since the beginning of modern philosophy. Berkeley and Hume, indeed, had published their greatest works when they were twenty-five and twenty-eight. But the *Principles of Knowledge* was only read by Berkeley's contemporaries to be laughed at, and the *Treatise on Human Nature* was not read by Hume's contemporaries at all. At thirty-seven Fichte was acclaimed as the thinker who had succeeded and had surpassed Kant. He was the leading philosopher in a nation which was more interested in philosophy than in any other subject.

Then came the accusation of atheism and his dismissal. M. Léon's account of this is full of interest. There cannot be the least doubt that, in any ordinary sense of the word, Fichte was at this time as much an atheist as Spinoza. "To believe in God"—so M. Léon sums up Fichte's position—"is not to affirm the existence of some unknown, mysterious, and incomprehensible being; it is to act conformably to duty" (p. 519). Fichte was accused of atheism in the ordinary sense of the word, and it is no answer to the accusation to say that he was not an atheist in a sense of the word which had been invented by himself. The question was whether he should be allowed to teach what is ordinarily called atheism.

There was only one answer to that question in 1799 for a small German state which was badly frightened by the French Revolution. The administration of Weimar, indeed, would probably have been content if Fichte had agreed not to teach the condemned doctrines, and would have allowed him to keep his chair. Kant had agreed to this course in connexion with his *Religion within the Limits of Mere Reason*, but that was only an appendix to Kant's philosophy, while Fichte's philosophy centred round his doctrine as to God.

It would probably have been impossible for Fichte to keep his chair in any case, and the unfortunate letter to Voigt rendered the matter hopeless. "I would have dismissed my own son," Goethe wrote, "if he had allowed himself such language in relation to a government." Goethe was not only Goethe, he was a German official of 1799. But it may be doubted whether any University, in any period, would have retained a Professor who had written such a letter. Fichte himself, while maintaining that he was perfectly right, admitted that the Weimar authorities could not, from their standpoint, have acted otherwise (p. 620).

The author hopes to publish the remaining volumes in 1923 and 1924.

They will be expected with impatience by every student of the great days of German Idealism.

J. ELLIS M'TAGGART.

Lotze's Theory of Reality. By E. E. THOMAS, M.A., Late Fellow of the University of Wales. London: Longmans, Green & Co., 1921. Pp. 1, 217.

Lotze's theory of thought, our author says, 'has already been adequately dealt with by Sir Henry Jones,' and Mr. Thomas therefore restricts himself to Lotze's theory of reality. Indeed, he completes Sir Henry Jones's original project; for the preface to Sir Henry Jones's book promised a companion volume on precisely the subject of this one, and as Sir Henry apparently abandoned his design long before his lamented death, he left the field clear for another author (may we say for another Welshman ?) to continue what he had begun.

On the other hand, this state of affairs is perhaps unfortunate for the younger author. Comparisons are scarcely avoidable, and there is nothing in the present book to match Sir Henry Jones's brilliant introductory chapter on 'The main problem of Lotze's philosophy'. Mr. Thomas, it is true, deals in part with the same general subject in his introduction (which is largely historical) and in his concluding chapter (on 'Lotze's achievement and influence'); but although he says the right things, he always says them tamely, and anyone who requires an introduction to Lotze (and is not familiar with Sir Henry Jones's book) will find it very hard to infer from this one why Lotze asked himself the questions that he did ask, why he reasoned as he did, and what manner of man he was. Lotze's *Stoff-Hunger*, his zeal for the ordinary consciousness; his consequent attempt to clip the wings of Hegelian idealism, on the one hand, and of scientific naturalism on the other hand, and the other aims which Sir Henry Jones portrayed so vividly, are treated here as if they were dead issues to be set down, conscientiously, in tolerable order.

Mr. Thomas, indeed, has so little sympathy with Lotze's *Stoff-Hunger* that he passes over the whole of the second book of the *Metaphysics*—the Cosmology—in his detailed exposition. On the other hand, his first six chapters make a fair attempt to deal with the first Book, and the eighth and ninth begin the discussion of Book III. (Psychology), although they turn very quickly to the treatment in the *Microcosmus*. Two chapters on the metaphysical import of the *Logic* come next, and Lotze's suggestion at the end of the *Metaphysics* introduces a chapter on "Moral Values as determining the nature of reality". The seventh chapter ('The passage to the human soul') gives no references except two (on the same page) to a section of the *Microcosmus*.

In view of Lotze's lengthy and involved philosophising it was, perhaps, inevitable that Mr. Thomas should circumscribe his discussion somewhat in the above fashion. Certainly, two of the main contentions of Lotze's general metaphysic—the attempt to prove that things are selves, and the place assigned to M—are fully discussed in this volume, and Lotze's third main contention—his doctrine of relations—is treated (although inadequately) at some length. On the other hand, the reader would be helped if the references were fuller, and if something of what is omitted were indicated in footnotes at least.

If the discussion is never very lively, it is always patient and painstaking. Mr. Thomas does not obtrude his own standpoint; he has no axe to grind; and he deserves all the praise which is due to these estimable qualities. *Per contra*, his book would have been far better if he had

treated the English language with reasonable respect. The word 'data' is not singular (p. 195); there is no excuse for speaking of 'structional' (p. 149) or of 'exclusivity' (pp. 92 and 93); on page 93 'like' should be 'as'; and no one should speak of 'resting universality and necessity in a reality' (p. 147) or of 'arriving upon' anything (p. 1), or of 'feeling a startle' (p. 34) or of 'approximating' one thing to another (p. 115). Among a host of sentences which might have been better put, I cite the following: "Thus the fact of the existence of bodily sensations, and also the fact that there is a changing individuality of experienced sense content different from the permanent individuality of sense content as going to the constitution of an objective world, go to show the existence of a soul life which is exclusive of, and which stands over against the world of objects" (p. 93).

"Lotze" is printed "Lotz" on pp. xlii and xliv, and the reference to *Met.*, sec. 329 (p. 105 n.), should be to sec. 239.

JOHN LAIRD.

Le Règne de la Pensée. By PAUL DECOSTER, Professeur a l'Université de Bruxelles. Bruxelles: M. Lamertin, 1922. Pp. 93.

This is the sequel to *La Réforme de la Conscience* which was noticed by the present writer in MIND, April, 1920. These two little books, each of about ninety pages, are full of profound thought, and though not easy reading will well repay study; for they represent an attempt to develop a philosophy which shall hold consistently to the central thought of "intrinsic value". Such a philosophy owes its importance to the fact that it is the spiritual analogue of a pure mechanical philosophy: both represent an attempt at perfect consistency of outlook. The one philosophy stresses reality *per se*, and denies value; the other stresses value, and denies reality *per se*. The importance of each depends on the extent to which it succeeds in eliminating the fundamental concept of the other. For philosophies of this type, when given clear expression, are "limiting cases" which throw the maximum light on the conceptions which are at man's disposal for the solution of his problems, and enable him step by step to mark out the complexity of the field of his labours.

The fundamental aim for philosophy, on M. Decoster's view, is the discovery of what has intrinsic value. In the second place, in our search for intrinsic value we must not appeal to any "faculty," such as knowing or feeling, etc., but must rest on the whole nature of man. Thirdly, for M. Decoster, the possession of intrinsic value is the sole test of reality.

From these three propositions the rest of his argument in its main lines seems to follow inevitably. For a judgment predicating value of an independent real is a contradiction in terms. Value supposes that the subject of the value and the recogniser of it are the same. Indeed "recognition" only covers the same problem. Strictly speaking, you do not so much recognise value as act or create it; or rather, genuine recognition is possible only as an element in the act of creation.

It is not enough, however, to deny the existence, or the reality, of a world independent of a self. It is necessary to turn away at the outset even from an objectivity considered as essentially related to a consciousness. If what has intrinsic value is alone real, then our first and last concern should be with the realisation of intrinsic value. M. Decoster's fundamental point is the necessity of delivering thought "à la fois du souci de l'objectivité et de la hantise de l'Etre. La dénomination intrinsèque est antérieure en droit à toute détermination objective. Qui poursuit l'une, doit faire table rase de l'autre. . . . Non moins que l'appar-

ence, la réalité est illusoire" (32). This, which he endeavoured to justify in the *Réforme* by a criticism of other philosophies, is taken in *Le Règne de la Pensée* as the starting point, as a direct consequence of the assertion of the supremacy of intrinsic value.

We are then thrown back upon the self as the ultimate source of all value and all reality; the phenomenal world which is presented as independent of me must be shown to be derived in some way from me. Again, if we are to find in the universe any more than a single self, we must obtain our justification for it in what we discover in the single self. This is one of M. Decoster's central points; and it is worked out in his account of man in society in Ch. iii. Contact with other persons, it is obvious, is a matter of varying quality and degree; in its highest and most essential form it is extremely rare and not necessarily of long duration; but the lower forms have to be considered as degradations of the highest form. When we consider it at its best, we find, on M. Decoster's view, that the individual only obtains it by creating the other persons as part of his own personality. The social bond is not something which exists in its own right, but which must be continually produced and maintained by man's own effort.

How far it is possible resolutely to hold to the self as an "individual conscious subject" (44) and yet avoid solipsism; how far distinct personalities can exist without being either separated by an independent material or blended in a super-personal unity: are in a sense M. Decoster's main problems. They cannot be solved, he insists, by any theoretical philosophy: but philosophy is for him fundamentally not theoretical, but practical.

We have no space to enter into a discussion of the detailed development of the situation whose broad outlines we have endeavoured to indicate; M. Decoster's handling is always vigorous and full of suggestiveness.

LEONARD RUSSELL.

Lineamenti di Filosofia Scettica. By GUISEPPE RENSI. 2nd edition revised and enlarged. Bologna: Zanichelli, 1921. Pp. 442.

Prof. Rensi of Genoa first published this work in 1919, and that a new and greatly enlarged edition should have been called for so soon is the most convincing testimony to its merits. These would appear to consist rather in the eloquence and literary skill with which the case is argued, the abundance of philosophic learning and the wide range of illustration, than in any special subtlety or novelty in the plea for scepticism itself. In other words Prof. Rensi's argument is historical rather than dialectical. He divides his book into three main sections, the first of which uses the War as a peg for expounding the irrationality of human activities, while the second, called *il diritto*, displays the irreconcilable conflicts in social and political life. The third is called 'philosophy,' and argues for scepticism from the existence of error, evil and the ineradicable variety of speculative opinion. In this last section, and indeed throughout, absolute idealism is treated as the enemy to be trounced and exposed, particularly in the forms given to it by Croce and Gentile, while positivism, relativism, pragmatism and fictionism (Vaihinger and Nietzsche) are regarded as subsidiary species of scepticism itself. This line of argument, though it derives a special piquancy from Prof. Rensi's philosophic past, appears to do much less than justice to the sceptical affinities of absolute idealism, which after all is quite as much a denial of human knowledge as it is an affirmation of absolute. Prof. Rensi recognises this in the case of

Bradley, whom he regards (p. 333) as (mainly) a sceptic furbishing up again "the essential theses of Sextus Empiricus"; but he usually seeks his philosophic allies in other camps.

That he can find such allies at all becomes intelligible when we discover what he means by scepticism. It appears from his answer to the old objection that a complete denial of knowledge destroys itself by applying also to the denial itself (p. 350 f.). Prof. Rensi waves it aside as 'mere verbalism,' because for him scepticism means only a denial that *philosophy* is knowledge, and leaves both 'facts' and 'faith' intact. It can recognise that 'facts' *are*, and denies only that they can be *explained*. Thus in short, and in principle, it is "nothing but empiricism" (p. 358 n.). It is compatible also with practical certainty (p. 398), and has nothing to fear from a line of thought which substitutes it for theoretic. Consequently it can swallow pragmatism whole, without a twinge.

But can it also digest it? The purely theoretic character Prof. Rensi ascribes to scepticism renders this doubtful. No doubt, *if* to overcome scepticism it is necessary to do so 'theoretically,' "on the ground on which it arises and with arms taken solely from that ground" (p. 398), and *if* there is no conceivable objection to the position that a belief may be at once theoretically false and practically indispensable and all the better for being false, pragmatism not only cannot overcome scepticism, but must merge into it. For pragmatism does *not* offer any 'purely theoretic' cure for doubt. It *must* admit that "reason as such" does not extricate itself from the contradictions in which it gets involved. But then pragmatism does *not* draw the old sceptical inference from this situation, but deals with it in an essentially novel manner. It points out that there is no such thing as 'reason as such,' that it is an abstraction or fiction. It refuses to sever 'theoretic' truth from its 'practical' consequences. It regards the union of theoretic falsity with practical value as a monstrosity, which can hardly be tolerated as a starting-point, and cannot stand as the conclusion, of a philosophic inquiry. In short it challenges the finality of the distinction between theory and practice, and the irrelevance of practical value to theoretic truth. And so it is entitled to hold that the unworkableness of a belief *is* an *argument* against it. If a professed 'sceptic' *acts as if* he believed, he casts a doubt on his profession. His disbelief falls under suspicion of being make-believe. And if he cannot but affirm by his acts the belief he repudiates in words, he refutes his scepticism in a far more final and conclusive manner than by any trick of dialectics. This is not to say, however, that all scepticism is impossible. It implies only that, to be tenable, scepticism must become practical and develop also a mode of living.

F. C. S. Schiller.

The Psychology of Society. By Morris Ginsberg, M.A., Lecturer in Philosophy, University College, London. London: Methuen & Co., Ltd., 1921. Pp. xvi, 174. 5s.

This book is presumably intended as a general introduction and guide for those who want to know what Social Psychology is about, the sort of things that are being discussed and the different views that are being maintained within that branch of knowledge. As such, it fulfils its purpose admirably. Mr. Ginsberg's style is always perfectly lucid, his comments and criticisms are always shrewd and to the point, he has a wide knowledge of recent literature on the subject, and he has something to tell us about most of the important questions that have been raised and the views that have been put forward. There are discussions on the nature

and functions of Instinct, on the place of Reason and Will in social life, on the idea of a group-mind, on the General Will, on the nature of community, on the psychology of the crowd, on organisation and democracy, and several other kindred questions.

The greater part of the book is critical. Mr. Ginsberg is a very cautious and conservative thinker and very slow to commit himself to any positive conclusion. When he does, it is generally to some well-tested view which can claim weighty support. Thus he definitely ranges himself on the side of those who, like Prof. Hobhouse, look to the individual personality rather than to the organised society as the fundamental fact in moral and social questions. He definitely rejects any idea of a group-mind,—his criticisms of the obscurities and confusions of Dr. McDougall's position on this question are particularly good,—and he refuses to accept any such notion of a General Will as that put forward by Dr. Bosanquet and other Idealists. He is also in reaction against the modern anti-intellectualist tendencies in Psychology, and brings against them the well-founded reproach that they are founded on an entirely inadequate idea of what reason and the intellect are and on "a false separation between reason or rational will and impulse". His summary of the objections to Dr. McDougall's view of the rôle of the instincts is clear and forcible. So, too, is his criticism of Mr. Trotter and his idea of the herd-instinct. He points out very clearly the dangerous tendency of both these writers to over-simplification in their attempts to reduce a number of complex facts to some one simple process, attempts which invariably end in leaving out just those features in the situation that we most want to explain. He complains, equally justifiably, of the tendency of such writers to regard the instincts as a number of independent entities, and "to look at the organism as a whole as a kind of aggregate of them". In fact, on almost every subject that he touches, he has something shrewd and pertinent to say.

Yet even in his criticisms he leaves us too often with a sense of incompleteness. We feel that there is a lot more to be said, and that he often leaves off just as he was getting to the real fundamental point. We get the impression rather of a series of occasional reflexions than of a systematic treatment of the subject. No doubt this arises in part from the task that he has set himself of dealing with so many different points in such a brief space. But it is particularly unfortunate when he comes to deal with Dr. Bosanquet's view of the General Will. His criticisms here are fair as far as they go. But Dr. Bosanquet would probably answer that they had never faced the real fundamental points at issue. A view which rests so much on such a deeply-laid metaphysical foundation cannot be thus lightly disposed of in a few pages.

The general criticisms that might be made on the book are, firstly, that it shows a certain lack of originality, secondly, that it is somewhat disconnected, and, finally, that it gives us very little but negative results. These are really, perhaps, criticisms rather of the present state of our knowledge in these matters than of the author individually. It is true that hardly any positive results have yet been attained in Social Psychology, except those which are plainly false or inadequate. It is true, also, that no one has yet found a single guiding thread through the complicated maze of social phenomena. But it is a question whether there is not a certain obligation on anyone who writes a book on the subject to make some attempt to advance the study to some degree and to give us some new knowledge. Mr. Ginsberg's book gives a great deal of information to those who wish to know how far we have got. But it is not likely to take us any further.

G. C. FIELD.

The Psycho-Analytical Study of the Family. By J. C. FLÜGEL, B.A. The International Psycho-Analytical Press. Pp. x + 259. Price 10s. 6d. net.

Mr. Flügel has written a book which not only well sustains the standard set by the earlier volumes of this series but also fills a distinct gap in psychological literature.

Many writers of the psycho-analytic school have dealt with different aspects of the relations between parents and children and some of these are, of course, at the very root of psycho-analytic doctrine. But so far as the present reviewer is aware this is the first serious attempt to deal comprehensively with the whole subject. It is written primarily for professional psychologists and advanced students to whom it will unquestionably prove of great value.

But in view of the very great importance of the subject and the rarity of good books dealing with it one rather wishes that Mr. Flügel had been able to see his way to tempering the wind for the benefit of the general reader. Ordinary people, unversed in psychology, would greatly benefit from a knowledge of the psychological forces at work within the family. They will scarcely be able to profit from Mr. Flügel's book, however, for it presupposes a knowledge of psycho-analytic doctrine and a familiarity with psycho-analytic concepts which few people possess. To describe the natural revolt of the child against parental authority as 'hatred' and the early deviations of potential sex impulses upon the nearest objects as 'incest tendencies', is psychologically unimpeachable but is certain to arouse the opposition of the laity. But it is notoriously difficult to write a book which is both technically accurate and easily assimilated by the public and this criticism is only prompted by regret that so valuable a work should be limited to a specialised public.

Perhaps the special merit of the work is the way in which the author shows how the psychological factors which operate in early childhood exert a profound influence on the child's subsequent development in every direction. This is seldom properly realised and, even where it is, parents do not possess the technical knowledge which would enable them to understand the 'sense' in which various circumstances produce their effect. Family life constitutes a replica in miniature of the social environment into which the child must ultimately enter after adolescence. Love and jealousy, dependence and emulation, authority, self-assertion, and pride are all represented on a scale which though small to the adult is full-sized to the child. And it is on the reactions which became habitual in the early years of family life that the type of behaviour in similar situations will afterwards depend.

Mr. Flügel's application of early influences to the religious and social reactions of the adult is of particular interest and seems to show how easily the whole of our national outlook on these questions could be transformed by a single generation of intelligent upbringing. This same process would probably remove one of the chief predisposing causes of neuroses. But the millennium will scarcely come yet; even the most enlightened and sagacious parent would find it difficult to steer an even course among the manifold dangers which Mr. Flügel unfolds, and much remains to be done before the best-intentioned persons can be sure of not handicapping their children by unwitting indiscretions of one kind or another. Probably it will never prove either possible or desirable to reduce the treatment of children to an exact science: it is more likely that the desired improvement will be brought about by a gradual eradication of complexes from the minds of successive generations, so that each

deals with the next more naturally and less at the dictation of parentally inspired prejudices.

But whether this be so or not there can be no doubt that Mr. Flügel's book will be counted as a foundation stone of the steadily consolidating science of those family relationships which are at the root of social life.

W. WHATELY SMITH.

The Æsthetic Attitude. By HERBERT S. LANGFELD. New York: Harcourt, Brace & Howe, 1920. Pp. 287.

This work is mainly a psychological discussion as to what constitutes the essential nature of the æsthetic attitude. The objective aspect of the problem, however, is constantly dealt with in the numerous references to objects of art, especially pictures, of which there are seventy prints, well chosen, and most of them excellent reproductions.

The main differentiating characteristic of this work is that it explicitly aims at the development of æsthetic appreciation in the reader. Yet this is sought not by means of suggestion and the expression of admiration, which is one means of æsthetic education, but by an attempt to make clear how the æsthetic attitude is produced, and what are the marks of a pseudo-æsthetic attitude.

Whatever views one may hold as to the effect, on the enjoyment of beauty, of psychologising upon one's attitude towards it, one may welcome an attempt along the lines indicated. For it is a problem on which we need the fullest information and discussion. Some hold that in turning attention inward on the mental process involved in the enjoyment of beauty, we are destroying our capacity for that enjoyment. Certainly at the moment of psychologising we are not admiring and enjoying the beautiful to the full. But we must consider the question in its widest aspect. Does an interest in psychological æsthetic problems *on the whole* lessen our enjoyment of beauty? We know that the literary scholar becomes engrossed in matters of historical and biographical facts which divert his attention for the moment from the purely æsthetic appreciation of a poet's creative work, but we also know that, taken as a whole, the literary scholar enjoys a much wider æsthetic appreciation than the untaught; and indeed the interest in facts of literary history in their relations to, say, the poem in question, sometimes approximates to an element in a unified æsthetic attitude towards the poem.

In a similar way can we not say that Wordsworth's interest in the subjective aspect of his appreciation of the beautiful in nature is sometimes so closely connected with that appreciation of nature as to enrich it rather than to detract from it?

In both the cases, of course, the value (other than its æsthetic value) of the intellectual interest may well justify its cultivation, though to rely on this alone would be quite different from claiming that by psychologising we can enhance æsthetic enjoyment. But even admitting that momentarily any such psychologising is inconsistent with the purely æsthetic attitude or the attitude of literary criticism, the right line of argument seems to be that in the long run such an added interest will result in a wider cultivation of æsthetic enjoyment and the adding to the variety and so the permanence and predominance of æsthetic interests, apart from the possibility of its influence in the selection of objects for æsthetic appreciation and on the development of art.

It might have led to a more original contribution to æsthetics if Dr. Langfeld had developed this aspect of the subject more fully throughout

his book. He is largely content, however, to give a general survey of some leading psychological doctrines as to æsthetic appreciation and to discuss such characteristics or supposed characteristics of the æsthetic attitude as the following: detachment and isolation, the absence of utility and purpose, stimulation combined with repose, the feeling of unreality, psychological distance.

Still more fully is discussed the doctrine of empathy. And here, while Dr. Langfeld explictly guards against the assertion that actual sensations must be experienced in the empathic interpretation of laws, of movements in a picture, etc., his expositions here and elsewhere seem to stress unduly the influence of movement in mental process and to approach something like a behaviourist view that mind can be interpreted in terms of motor reaction. This tendency appears even in the discussion of "Attention as a Unifying Process," when, for example, he writes: "The attention to different musical compositions involves very different co-ordinations of emphatic responses; but since, normally, the very same muscle groups are employed, it is impossible to listen to two pieces of music simultaneously".

A good deal of recent experimental material very relevant to some of the problems discussed is ignored by Dr. Langfeld. The book, however, is written in a very clear style; fallacies are not at any time concealed by obscure expression as is sometimes the case. The work will serve as a useful introduction more especially to the study of the point of contact between psychological and pictorial art. Perhaps the most useful part of the book is the discussion on Unity (under Unity and Imagination and Illustration of Unity from the Fine Arts) in which Dr. Langfeld allows due recognition to the significance of the nature of attention in æsthetic appreciation.

C. W. VALENTINE.

The Elements of Social Justice. By L. T. HOBHOUSE. London: George Allen & Unwin, Ltd., 1922. Pp. 206.

Thirty years ago it looked as though 'Natural Rights' were coming to be regarded as having outlived their usefulness and were to sink into obscurity. Criticism was directed against them by writers as different as Huxley and Ritchie; and, though the critics may not have agreed with each other, they were at one in pointing out that some of these Rights were inconsistent, when pressed, with others, and that there were dangers in using so uncertain a guide as the conception of Rights appeared to be. The defenders of Natural Rights were reduced to arguing that the formula ought to be retained in default of something better. It is true that philosophers never gave up using the expression: but, as Prof. Hobhouse points out in this volume, they would have been more consistent if they had done so. Natural rights seemed to be employed by them either as a somewhat ambiguous substitute for political ideals, or as guiding conceptions which came in whenever the ideas of social good or human progress were too wide to give any help. Partly the term was retained as a concession to ordinary language. Aristotelians like Green and Ritchie would have felt uncomfortable if they had seemed to suggest that expressions which had inspired enthusiasm and had promoted progress could be laid on one side as though they had entirely lost their meaning. And it is impossible not to feel grateful to a writer like Prof. Hobhouse, whether he call himself an Aristotelian or not, who is willing to assume that such words as rights, liberty, or equality must be prepared to yield a useful meaning if they are carefully analysed, and to

take the trouble to examine them seriously in order to separate the valuable elements which, on the lowest estimate, they must contain. In part this book is to be regarded as applying principles which the author has already explained in *The Rational Good*. The several essays contained in it can no doubt be understood by themselves, as each of them endeavours to sift the meaning of some one conception which is in current use. But these examinations are conducted on a common principle. The advertisement to the present volume describes its object, rather strangely, as being "to show that social and political institutions are not ends in themselves". It is true that the first sentence of the book asserts this. But Prof. Hobhouse does not appear to prove this here: nor is he obliged to do so, for he has advanced arguments in support of that thesis before. But it does no doubt amount to an additional proof if it is shown that his theory of social good enables him to give an intelligible meaning to the conceptions which he discusses and to extract full value from them. It would be out of place to examine here the principles which are explained in *The Rational Good*. Those who do not know that work are provided by the author with a convenient summary in the first chapter of this volume. There follow discussions of rights and duties, liberty, justice and equality, the payment of service, property and economic organisation, social and personal factors in wealth, industrial organisation, and democracy. All of these are so carefully and patiently conducted, with so full a regard for all considerations which might be advanced, that it would require an amount of space equal to that occupied by the discussions themselves to make any adequate remarks on them. In two respects only does Prof. Hobhouse seem at times to lose his judicial attitude. He is apt to be impatient of the idealist philosophers, and he occasionally shows affinity for that belief in the wrongness of his country's actions which, while it may place the Englishman who adopts it on a moral and political level far above that occupied by his fellow-countryman who believes that his country is always right, is ultimately not much more worthy of a philosopher. Those who are able to accept Prof. Hobhouse's social principles will find their attitude strengthened in this volume: and those who have doubts will at least feel that he can give an account of the ideas which he discusses such as can win their sympathy, and that he does not avoid difficulties by a phrase or an evasion.

P. V. M. Benecke.

Bemerkungen über den Platonischen Dialog Parmenides. By Harald Höffding. (Bibliothek der Philosophie: 21 Band.) Berlin: L. Simion, 1921. Pp. 56.

A pamphlet by so distinguished an author as the veteran Höffding is always a welcome addition to philosophical literature. But I cannot see that the present *brochure* really throws any new light on its subject. The view is expressed that the structure of the *Parmenides* is so inartistic and the sophistry of some of the reasoning so gross that it is fair to conjecture that we are dealing with papers never intended for circulation but given to the world posthumously by the unwise admiration of disciples. I am afraid that this judgment means that Höffding, like many writers on Plato, inhibits his sense of humour when he opens that philosopher's works. Failure to recognise the presence of a peculiar mischievous humour has hindered the understanding of a great deal of Plato; it makes the *Parmenides* wholly unintelligible. Yet there is really no great mystery about the dialogue, and Plato himself has given us the key to it by the plain intimation that it is to be taken as an imitation of the method of Zeno

with the opponents of Parmenides, a method which he is careful to describe for us. Plato takes a number of objections to the doctrine of the "participation" of sensible things in εἴδη and states them with great force. The objections are not his own, and there is not the slightest reason to assume, as Höffding does, that he thought them really dangerous. In point of fact, they are all fallacious, but it is not Plato's game to tell us so. He leaves them where they are and turns on the disciples of the Eleatics from whom the objections come. "Socrates' theory leads to difficulties?" he says. "Well, take your own doctrine of the One, let it be subjected to a dialectic like your own, and see how you like *its* consequences." When one has once grasped the point that the whole thing is a subtle jest, a turning of the Megarian dialectic on the men of Megara, one is in a position to appreciate the structure of the dialogue for the masterpiece of art it really is. Höffding misses the fun, asks no questions about the address of the satire and so falls into the mistake of assuming both that Plato was perplexed by the paralogisms of the first part and was unaware that there is a great deal of "sophistry" in the second. He even makes the singular mistake of saying that the antithesis One—Many is badly chosen for Plato's purposes and that he would have done better to deal with that of Same—Other, making here a curious error of fact. He quotes *Parm.* 139d for the view that the φύσις of the One is identical with that of the Same. But he has omitted an οὐχ. Plato expressly says that the two things are *not* the same and gives an unanswerable reason for the distinction, *viz.*, that what is the "same as 2" is not 1 but 2.

A. E. Taylor.

Die Differentielle Psychologie in ihren methodischen Grundlagen. Von William Stern. Dritte Auflage. Leipzig: J. A. Barth, 1921. S. x + 546. M. 63; geb. M. 72.

This well-known work was first published in 1911. It was a comprehensive review of the researches which had been carried out upon the nature, variety, and significance of individual differences, and it contained an original contribution to its problems which was of great importance. For a considerable time now the volume has been out of print, and there was every justification for its republication. An attempt has been made to bring it up to date, by adding a survey of the development of the psychological study of individual differences since 1911, and a bibliography of recent work.

Both the survey and the bibliography might have been improved. The former, interesting as it is, is a rather summary and off-hand piece of work. It consists of three short sections, the first dealing with the significance of recent studies of individual differences from the point of view of general theoretical psychology, the second discussing some of the practical applications of psychological tests, and the third giving an account of developments in the methodology of the subject. In each section references are made to the most outstanding pieces of research in the field surveyed. A mere reference to large numbers of books and papers is not, however, of great value. A more reasoned discussion, and a real attempt at an appraisement of the works referred to should have been attempted.

The bibliography is fairly comprehensive, for it contains the titles of over 430 books and papers which have been published since 1911. Even so it is by no means complete. To take a single illustration, the section on statistics contains no reference to the important work of Prof. G. H. Thompson. And a glance at many other sections shows similar omissions

in regard to other branches of research. The point is, not that such a list should be complete, for that is practically impossible in a subject in which publications appear with such bewildering speed as is the case, for instance, with the modern investigations of "mental tests," but that the bibliography should be selective, and that short descriptive and critical notes should be added.

However *Die Differentielle Psychologie* remains a standard work, and its reappearance will, no doubt, be heartily welcomed. Though the additions are rather scanty, they may yet help to set new investigators at work along fruitful lines of enquiry.

F. C. B.

La Filosofia di Giorgio Berkeley (Metafisica e Gnoseologia). By Adolfo Levi. Turin, Bocca Bros., 1922. Pp. 102.

Mr. Levi has brought to his study of Berkeley the same wealth of knowledge of the literature of the whole subject which distinguishes his work on Plato. He rightly comments on the singular error of the average historian of philosophy who confines his attention to Berkeley's juvenile writings and contrives to fit them into his preconceived scheme as a mere half-way house between Locke and Hume. Mr. Levi's own work aims at showing the substantial "autonomy" of Berkeley's philosophical thought and tracing the steady and consistent line of development which it follows from the *Common-Place Book* right on to *Siris*. On the main point that Berkeley is not a "continuator of Locke," the best recent British and American critics would be pretty much in accord with Mr. Levi, and his conclusion could be further reinforced by the considerations recently adduced from America which go to show that Berkeley's criticism of Locke is mainly motived by the acceptance of Locke's doctrines by his own real enemies, the "minute philosophers," who treat the perceived world as phenomenal of an unperceived real world of Newtonian "corpuscles" and run the risk of making this Newtonian "matter" at least coeternal with God. It is naturally welcome to Berkeley's countrymen to receive so admirable a study of him from Italy. If it is not presumptuous, I should like to express the wish that Mr. Levi would lay us under a further obligation by producing an equally independent study of Locke himself, one of the most generally misunderstood of philosophers.

A. E. T.

Received also :—

S. Dasgupta, *A History of Indian Philosophy, Vol. I.*, Cambridge University Press, 1922, pp. xvi, 528.

L. Lévy-Bruhl, *La Mentalité Primitive*, Paris, F. Alcan, 1922, pp. iii, 537.

H. B. Smith, *Foundations of Formal Logic*, Philadelphia, University of Pennsylvania Press, 1922, pp. 56.

Sir C. Walston, *Harmonism and Conscious Evolution*, London, J. Murray, 1922, pp. xvi, 463.

M. Engel, *Gedanken über das Denken* (Bibliothek der Philosophie, ed. by L. Stein, 22 Band), Berlin, L. Simion Nf., 1922, pp. 73.

L. Lavelle, *La Dialectique du Monde Sensible*, Strasbourg, Palais de l'Université, 1921, pp. xlv, 228.

L. Lavelle, *La Perception Visuelle de la Profondeur*, Strasbourg, Palais de l'Université, 1921, pp. 72.

R. Berthelot, *Un Romantisme Utilitaire, Étude sur le Mouvement Pragmatiste*, Vol. III., *Le Pragmatisme Religieux chez W. James et chez les Catholiques Modernistes*, Paris, F. Alcan, 1922, pp. 428.

H. Delacroix, *La Religion et la Foi*, Paris, F. Alcan, 1922, pp. xii, 462.

B. Croce, *Æsthetic*, trans. by D. Ainslie, 2nd Edition, London, Macmillan & Co. Ltd., 1922, pp. xxx, 503.

A. Einstein, *Sidelights on Relativity*, trans. by G. B. Jeffrey and W. Perrett, London, Methuen & Co. Ltd., 1922, pp. 56.

J. Becquerel, *Le Principe de Relativité et la Théorie de la Gravitation*, Paris, Gauthier-Villars et Cie, 1922, pp. ix, 342.

F. Michaud, *Rayonnement et Gravitation*, Paris, Gauthier-Villars et Cie, 1922, pp. 61.

L. Bloch, *Le Principe de la Relativité et la Théorie d'Einstein*, Paris, Gauthier-Villars et Cie, 1922, pp. 42.

Général Chapel, *Éther-Électricité Relativisme*, Paris, Gauthier-Villars et Cie, 1922, pp. 40.

W. H. V. Reade, *A Criticism of Einstein and his Problem*, Oxford, B. Blackwell, 1922, pp. 126.

R. B. Appleton, *The Elements of Greek Philosophy from Thales to Aristotle*, London, Methuen and Co. Ltd., 1922, pp. xiv, 170.

E. Dupréel, *La Légende Socratique et les Sources de Platon*, Brussels, R. Sand, 1922, pp. 450.

C. Lalo, *Aristote* (Les Philosophes), Paris, Delaplane, pp. 160.

E. Gilson, *La Philosophie au Moyen Age*, 2 vols., Paris, Payot et Cie, 1922, pp. 160, 159.

M. de Wulf, *Philosophy and Civilization in the Middle Ages*, Princeton University Press, 1922, pp. x, 313.

K. Vorländer, *Immanuel Kants Leben*, Leipzig, F. Meiner, pp. xi, 223.

M. Heynacher, *Goethes Philosophie aus seinen Werken*, 2nd Edition, Leipzig, F. Meiner, pp. cxxxi, 319.

G. Gurwitsch, *Kant und Fichte als Rousseau-Interpreten*, Off-print from "Kant-Studien," XXVII., 1922, pp. 26.

J. G. Fichte, *Einige Vorlesungen über die Bestimmung des Gelehrten*, 2nd enlarged Edition, Leipzig, F. Meiner, 1922, pp. 61.

G. Gurwitsch, *Die Einheit der Fichteschen Philosophie*, Berlin, A. Collignon, 1922, pp. 38.

J. McT. E. McTaggart, *Studies in the Hegelian Dialectic*, Second Edition, Cambridge University Press, 1922, pp. xvi, 255.

F. Duine, *La Mennais*, Paris, Garnier Frères, 1922, pp. iii, 389.

R. Ardigò, *Scritti Vari*, collected and arranged by G. Marchesini, Florence, F. Le Monnier, pp. 301.

A. A. Brill, *Fundamental Conceptions of Psycho-analysis*, London, G. Allen & Unwin Ltd., 1922, pp. vii, 344.

W. Brown, *Suggestion and Mental Analysis*, London University Press Ltd., 1922, pp. 165.

V. M. Firth, *The Machinery of the Mind*, London, G. Allen & Unwin Ltd., 1922, pp. 95.

L. Vivante, *Della Intelligenza nell' Espressione*, Rome, P. Maglione & C. Strini, 1922, pp. ix, 229.

H. Macnaghten, *Émile Coué, The Man and His Work*, London, Methuen & Co. Ltd., pp. 52.

G. Belot, *Études de Morale Positive*, 2 vols., 2nd Edition, Paris, F. Alcan, 1921, pp. xix, 291 ; 288.

M. G. Rigg, *Theories of the Obligation of Citizen to State*, Philadelphia, University of Pennsylvania, 1921, pp. 75.

R. E. Roper, *The Individual and the Community*, London, G. Allen & Unwin Ltd., 1922, pp. 224.

G. Davy, *La Foi Jurée*, Paris, F. Alcan, 1922, pp. 379.

J. Dewey, *Human Nature and Conduct*, London, G. Allen & Unwin Ltd., 1922, pp. vii, 336.

C. Lalo, *L'Art et la Morale*, Paris, F. Alcan, 1922, pp. 184.

F. Brentano, *Vom Ursprung Sittlicher Erkenntnis*, 2nd Edition, ed. by O. Kraus, Leipzig, F. Meiner, 1922, pp. xiv, 108.

F. Brentano, *Die Lehre Jesu und ihre bleibende Bedeutung*, ed. by A. Kastil, Leipzig, F. Meiner, 1922, pp. xviii, 149.

J. R. Solly, *Free Will and Determinism*, London, Constable & Co. Ltd., 1922, pp. 27.

F. C. Prescott, *The Poetic Mind*, New York, The Macmillan Co., 1922, pp. xx, 308.

The Labour Movement and the Hospital Crisis, London, The Trades Union Congress and the Labour Party, pp. 20.

A. Watkins, *Early British Trackways, Moats, Mounds, Camps, and Sites*, Hereford, The Watkins Meter Co., 1922, pp. 40.

VIII.—PHILOSOPHICAL PERIODICALS.

BRITISH JOURNAL OF PSYCHOLOGY. Vol. xii., Part i. June, 1921. In "Instinctive Behaviour and Enjoyment" **C. Lloyd Morgan** discusses the nature of instinctive actions and their dependence on heredity. The term instinctive is used analytically as to that element of a complex process which is unlearnt. The acquisition of psychical data in the process of learning is only "intelligent" when such acquisition involves some seeking and choosing. The mere "provision and psychical registration of data through unlearnt behaviour does not itself imply intelligent processes." The instinctive enjoyment which is correlated with instinctive behaviour "is accompaniment and accompaniment only, without guiding efficacy, though it provides the data for conscious guidance in the life of fuller and further development".

In discussing the physiological correlate of instinctive process the author surmises that "intelligent integration may have its unlearnt form dependent on the inherited synaptic pattern in the cortex". In a concluding dialogue Lloyd Morgan foreshadows his forthcoming restatement of some of Spinoza's doctrines, and in particular refers to one corollary of Spinoza's view that there is no interaction between instinctive behaviour as a mode within the attribute of "extension," and instinctive enjoyment, as a mode within the attribute of "thought" or of consciousness.

F. Aveling and **H. L. Hargreaves,** in "Suggestibility with and without Prestige in Children," give an account of experiments in two schools with both boys and girls. The tests included the suggestion of hand rigidity, of hand levitation, and of sense of warmth, of length of lines and of incorrect statements about pictures seen. The following conclusions were reached: In cases of suggestion, under conditions in which the influence of personal prestige was prominent, a negative response owing to the development of contra-suggestion is frequent. Consequently subjects tend to be classified into two sharply divided groups, the suggestible and the non-suggestible (or contra-suggestible). In cases of impersonal suggestion contra-suggestibility was not so frequently aroused, and the distribution was approximately normal, the majority of the subjects being moderately suggestible. There was evidence which pointed to a general factor of Suggestibility complicated by group factors. General suggestibility was greatly modified by the specific conditions and elements of the whole situation, which vary in individual cases according to experience of it and knowledge about it. There was no ascertained tendency for suggestibility to go with other "general" factors such as General Intelligence, Perseveration, Oscillation, or Motor Dexterity. There was a small correlation between it and Common Sense regarded as consisting largely of affective and conative elements; but none if Common Sense was considered as a purely cognitive quality. **B. Muscio** in an article "Is a Fatigue Test possible?" criticises the current view of fatigue as "reduced capacity for work". The term work is too narrow (activity is suggested as a substitute), yet is not specific enough; does it mean capacity for the same kind of work or for all work? Further it takes no

account of complication factors such as varying incentives to work, the effect of irrelevant distractions, etc. The writer suggests the abolition of the word fatigue from scientific discussion and the definition of such problems in the form of the effect of different kinds and amounts of work (activity) on mental and physiological functions.

Other articles are as follows:—

Rodrigo Lavin, "A Preliminary Study of the Reproduction of Hand Movements".

Edward Bullough, "Recent Work in Experimental Æsthetics".

G. Udny Yule, "Critical Notice of William Brown and Godfrey H. Thomson's 'The Essentials of Mental Measurement'".

JOURNAL OF PHILOSOPHY. xix., 3. **C. H. Toll.** 'On the Method of Metaphysics.' [All metaphysics start from the antithesis of the given and the real. The former should have nothing hypothetical about it, but in approaching the latter hypotheses must be used, and it must not be assumed that only one of these will be tenable. It is held also that "some actual interpreting of the data is itself part of the data". Finally metaphysics should "give some recognition to the non-logical features by which some hypotheses acquire a weighted value for us" and are selected on moral or æsthetic grounds.] **B. H. Bode.** 'Critical Realism.' [Argues that the authors of the book reviewed are not really agreed and concludes that "Critical Realism provides no content for the notion of mental states; which is perhaps the reason why it is not scandalised by the suggestion of unconscious mental states. If we stick consistently to the doctrine that the given consists of essences, there can be no room for existences of any sort, and both external objects and mental states go by the board."] xix., 4. **K. Dunlap.** 'The Identity of Instinct and Habit.' [Points out that "the instincts are teleological groupings of activities, not psychological groupings," and are based on the purposes of the classifier and not on those of the reacting animal. In the end there is "no way of distinguishing usefully between instinct and habit. All reactions are definite responses to definite stimulus patterns, and the exact character of the response is determined in every case by the inherited constitution of the organism *and* the stimulus pattern. All reactions are instinctive and all are acquired. If we consider instinct, we find it to be the form and method of habit-formation: if we consider habit we find it to be the way in which instinct exhibits itself."] **J. R. Geiger.** 'Must we give up Instincts in Psychology?' [Maintains that so long as "the primary condition of significant activity is internal rather than external," the term 'instinct' is justified.] **W. S. Hunter.** 'The Modification of Instinct.' [Argues that "associations formed prior to the appearance of an instinct" may modify it when it appears, without its being therefore nothing but a habit.] xix., 5. **S. C. Pepper.** 'A Suggestion Regarding Esthetics.' [Three approaches to æsthetics have been tried, the critical, the philosophical, the psychological; none has been a success. But it is not necessary that the foundations of a science must be firm before it gets to work. All a science needs to start with is a working unit, *i.e.*, a working hypothesis. The 'liking a thing for itself' as opposed to valuing it as a means to something else may suffice to get æsthetics going.] **W. T. Bush.** 'Æsthetic Values and their Interpretation.' [Refuses to separate beauty and use as sharply as the previous paper, and suggests that beauty refers to present, use to future, value.] **A. L. Hammond.** 'Immediate Inference and the Distribution of Terms.' [Denies that the exceptive proposition is adequately rendered by *All non-S is P*, and the exclusive by *All P is S*.]

IX.—NOTES.

M. BLONDEL'S "L'ACTION".

To the Editor of "MIND".

DEAR SIR,

I do not think Prof. Wildon Carr in his review of the Italian Translation of M. Blondel's L'Action can have seen a letter of M. Blondel to the March, 1921, number of *La Nouvelle Journée*, entitled Un Rapt. Prof. Wildon Carr says of the Italian Translation, that it was made "against the author's wish, though not, we understand, actually in defiance of his authority". M. Blondel in his letter calls the translation "un rapt," and after a vigorous protest—"il a suffi de l'audace de deux étrangers pour que, en dépit des précautions les plus réfléchies et contre toute vraisemblance, un rapt soit commis,"—he quotes his letter to the Editor and Translator of L'Action; "Je proteste absolument contre l'abus matériel et moral qui est fait de mon œuvre et de mon nom. Au mépris de mes droits les plus certains et de mes intentions les plus avérées, vous usurpez une 'proprieté littéraire,' qui ne vous appartient à aucun titre."

Prof. Wildon Carr also writes that L'Action "unfortunately aroused such violent animosity in Catholic circles that the author withdrew it, and so effectually that copies are now excessively rare (the Bodleian is believed to be the only public library to possess one)". M. Blondel explicitly denies this: Il est dit que j'ai rétiré mon livre du commerce. Non: les 750 exemplaires du tirage ont été rapidement épuisés, rien de plus. Le traducteur donne en outre à entendre que c'est la crainte des censures qui a empêché une réédition. Non: c'est mon mécontement de moi-même. . . . Copies of L'Action are rare, as the quotation given explains, but any reader at Dr. Williams' Library, for instance, could obtain one.

Lastly, I think it should be pointed out that M. Blondel would not allow of the association of his name with those of Bergson, Croce and Gentile. His aims are quite different. He has emphasised the fundamental differences between Bergson and himself, between Pragmatism and L'Action, and derives his inspiration from Leibniz and Ollé-Laprune.

M. C. D'ARCY.

MR. D'ARCY is entirely right and I must express my sincere regret for the error into which I was led by an Italian friend of the translator at the time of the publication of the translation last summer.

The association of M. Blondel's name with Bergson, Croce, and Gentile was not intended to convey the idea that their aims were identical. My reference was not personal at all but meant only to indicate a tendency of doctrines in themselves totally diverse.

H. WILDON CARR.

INTUITION OF REALITY.

SIR,

Mr. Leo Stein relates in the April number of MIND an experience which he believes to be similar to my own experience of an ineradicable certainty of the immortality, pre-existence and bisexuality of the Self. I am afraid his vision which gave him the explanation of rest and motion was of a totally different kind. It did not refer to his own innermost Self, and did not give him a permanent absolute conviction, with many practical consequences in everyday life, as was the case with me. The fact that he could attempt later to explain it away by the very unconvincing image of a balloon which may burst and disappear, proves clearly that he did not reach absolute reality. I quite agree with him that if he had the impression that he was whatever he thought, this was not sound knowledge. I know myself to be myself, and different from everybody else. Such a knowledge remains unshaken for ever, and cannot be explained away as an illusion. I trust that some readers of MIND have experienced the birth of such a conviction which cannot be shaken by anything. Their testimony would confirm, but could not strengthen, my own conviction that I am a true Being, which cannot be destroyed by Death and has not been created by conception and birth. I remember a very long conversation with William James on this subject in 1899 and learn that in his published correspondence a letter from him to Miss Frances R. Morse of 17th September, 1899, is printed in which he writes with reference to this meeting at Bad Nauheim :—

"He takes in dead seriousness what most people admit, but only half believe, *viz.*, that we are *Souls*, that souls are immortal and agents of the world's destinies, and that the chief concern of a Soul is to get ahead by the help of other souls with whom it can establish confidential relations . . . abstractly his scheme is divine, but there is something on which I can't yet lay my defining finger that makes one feel that there is some need of the corrective and critical and arresting judgment in his manner of carrying it out. These Slavs seem to be the great radical livers-out of their theories."

William James was right in thinking that there was something wrong in my way of carrying out the consequences of my conviction. I believed that everybody can go through the same experience and I was wrong. Since then I have learnt that such an experience is rare and that it cannot be produced by the influence of one man on another. It must come unsought and not by some kind of suggestion, if it is to leave lasting results.

Yours sincerely,

W. LUTOSLAWSKI.

SIR HENRY JONES, C.H., LL.D., D.LITT., F.B.A., 1852-1922.

WITH the death of Sir Henry Jones, on 4th February, 1922, philosophy loses one of the band of brilliant men who studied philosophy under Caird in Glasgow. Sir Henry Jones, the son of a shoemaker, fought his way through poverty from shoemaking to the University, with no advantages but those due to an indomitable spirit, and the proud and loving help of the village community in which he was brought up. He occupied the Chair of Philosophy and Political Economy in Bangor, North Wales, and the Chair of Logic in St. Andrews ; and in 1894 was appointed as Caird's successor to the Chair of Moral Philosophy in Glasgow. His writings include *Browning as a Philosophical and Religious Teacher*

(1891); *The Philosophy of Lotze* (1895); *Social Responsibilities* (1905); *Idealism as a Practical Creed* (1909), delivered in the University of Sydney, New South Wales; *Social Powers* (1913); *The Principles of Citizenship* (1919); *A Faith that Enquires* (1922), Gifford Lectures delivered in the University of Glasgow, 1920-1921. With Prof. J. H. Muirhead he wrote the *Life of Edward Caird* (1922).

Philosophy in his hands was something vital: He drove it unceasingly on to the practical issues of life, and brought the practical issues back to ultimate principles of metaphysics. Plato and Aristotle, Spinoza and Kant and Hegel, and with them, Nettleship and Green, Caird and Wallace, were his favourite philosophers: for in them he felt a centrality of outlook, a rightness of spirit, which seemed to him lacking in Descartes or Leibniz, Locke or Hume. His books show how much his thought and his style owed to the Bible and to the great poets. His weightiest book is his *Lotze*, but he did not complete the promised sequel, largely, I believe, because he felt that the investigation would not be as valuable as a more direct and positive exposition of the conclusions to which a criticism of Lotze would have led.

This attitude was due to the intensity of his feeling that a true philosophy is so urgent a matter for life that you cannot afford to delay too long over positions which have already been discovered to rest on erroneous principles. To follow out in detail the consequences of principles which rest on wrong assumptions is, he felt, to fritter away energy which it is a duty to put to more fruitful uses. He taught his students to endeavour to bring to light the hidden assumptions on which any philosophy rests, and to concentrate on them, because they are the important part of the philosophy. When you have learned, he insisted, go forward and leave the mistakes behind. The task appeared to him less tortuous and complex than it appeared to some of his men; where he was sure, they were groping slowly and in uncertainty; but they could not fail to be penetrated by his spirit of the seriousness of the task undertaken by philosophy.

He was a keen fighter and a great friend. There was nothing half-hearted or moderate about him. True virtue, he insisted, can let itself go, fully and absolutely, for it is infinite and (it was a central thought) carries its own limits within it as a part of itself. And he pointed to the life of Christ.

This big-hearted outspoken optimism was, I think, the source of the great personal influence he exerted. It was the source, too, of the somewhat mixed feelings some of his students had for him. When you felt he was going rather rapidly to his conclusions, putting aside with a gesture obstacles that you felt were stronger than he would allow, he would bear down on you and the obstacle with his scorn, reducing you to silence. And then, as if he saw you felt he was bullying, he would pull himself up and try to make amends by mildness.

His Gifford Lectures were completed during a last gallant struggle against the disease which he had fought so cheerfully for many years. He lost his much loved younger son in the war. It was given to him to enact in his own person the tragedy that, in his younger and vigorous days, had always seemed to him to be the most sublime expression of humanity's faith, and to be able himself, in his own tragedy, to keep his faith undimmed. "Though He slay me, yet will I trust Him," he could still say.

LEONARD RUSSELL.

THE LATE MISS E. E. CONSTANCE JONES.

Miss Jones rendered services of very high value and importance to education as Lecturer in Logic at Gerton, and subsequently as mistress of that College. She was also endeared to a large circle of friends and pupils by her rare and admirable personal character. It would require much space to do justice to her memory from these points of view. What I am here especially concerned with is her published work in Philosophy.

Miss Jones was keenly interested in all vital philosophical questions and she has written well on Ethics and Metaphysics. Logic, however, was her special subject, and it is only here that she would herself have made any claim to originality. The logical topics with which she was chiefly concerned were the import and interpretation of propositions. She did good service in insisting on the distinction between interpretation from the point of view of the speaker and that of the hearer. But her main contribution, in her own view and also in mine, is to be found in her general view of import.[1] On the threshold of Logic we are confronted by the question, What is a proposition? and this, as Miss Jones maintained, is identical with the question, "What is a significant assertion?" There is significance so far and only so far as thought is carried forward beyond its point of departure to something in some way different from this. Thus the verbal formula A is A is totally insignificant. On the other hand, mere difference is not enough to give significance. In asserting a proposition we always assert identity: to say that A is B is to say that what we distinguish as being A, is identical with something that is B. This cannot, of course, mean that differences as such are identical. Are we then to say, with many logicians, that what is asserted is "identity in difference"? But how can this be, if the differences themselves are not identical? Miss Jones holds that we ought to speak of differences within an identity rather than of identity in difference. In ordinary categorical propositions we are dealing with a complex unity, comprehending and connecting with each other, on the one hand, a character specifying this complex as the subject concerning which an assertion is made, on the other hand, a character asserted as predicate. The copula is the complex unity itself. Miss Jones further identifies the inclusive whole with "denotation" and the diverse characters which it includes with "intension". Every categorical affirmation asserts diversity of intension as included within a denotational unity. In *S is P*, the denotation of S and P is the same though S-ness and P-ness are diverse. As a general formula for categoricals this seems fairly satisfactory, though not entirely free from difficulty. But Miss Jones would also extend it to hypothetical and disjunctive propositions. Though she defends this position with much acuteness and ingenuity, it can hardly be said that her treatment of the question is adequate. Granting that in non-categoricals as in categoricals what is asserted is always the connexion of differences within a unity; it is not clear that this can be adequately described as a denotational unity, when the meaning of the word denotation is determined merely by the current use of it in logical text-book. Further analysis and reconstruction seem to be required. However this may be, Miss Jones was, I think, right in insisting that some explicit formula defining the most general conditions of significant assertion ought to be made fundamental in works on Logic.

[1] Most definitely formulated in her little book *A New Law of Thought and Its Logical Bearings*, which was very appreciatively reviewed by Dr. Schiller, Mind, N.S., vol. xxi., p. 246. *Cf., Symposium in Aristot. Soc. Proceedings*, 1914-1915, p. 353.

I have dwelt on this topic, because Miss Jones herself would have wished me to do so. Her work on other subjects than Logic, though highly competent, was expository and critical rather than constructive. In Ethics she has given a very accurate and careful account of Sidgwick's utilitarianism and an able defence of it against its critics.[1]. She showed her interest in Metaphysics by her admirably accurate and lucid translation of Lotze's Microcosmus. I may also refer to an article on "Dr. Ward's Refutation of Dualism" as a good sample of her power of exposition and sympathetic appreciation.[2]

No mere re erence to her published work will do justice to the service rendered by Miss Jones to philosophy within her own circle of friends and colleagues. In conversation and discussion she was in a high degree helpful and stimulating, owing to her keen and unfailing interest in philosophical questions, her candour and straight-forward simplicity, and her remarkable flashes of insight.

G. F. STOUT.

SOCIETAS SPINOZANA.

AN international society with this title and having its headquarters at The Hague was founded in 1920 in order to further the study of Spinoza's philosophy. With this object it proposes, among other things, to publish annually a journal, to be called *Chronicon Spinozanum*, containing articles, in various languages, bearing on Spinoza's teaching and life; and the first number of this journal is now ready. The editors are H. Höffding, W. Meyer, Sir F. Pollock, L. Brunschvieg and C. Gebhardt. The journal will not be on sale to the general public, but members of the society will receive it free of charge; and applications for membership are invited. Members must be approved by the Governing Body of the society and must pay an annual subscription of 10s. Application may be made to Mr. L. Roth, Exeter College, Oxford.

[1] *Proceedings of Aristot. Society*, 1903-1905.
[2] MIND, N.S., vol. ix.

uld have
gh highly
ive. In
dgwick's
showed
transla-
on "Dr.
exposi-

e service
friends
n degree
erest in
ity, and

TOUR.

rters at
pinoza's
publish
taining
fe; and
are H.
bhardt.
s of the
bership
of the
may be